▽ UNION OF AMERICAN REPUBLICS ▽

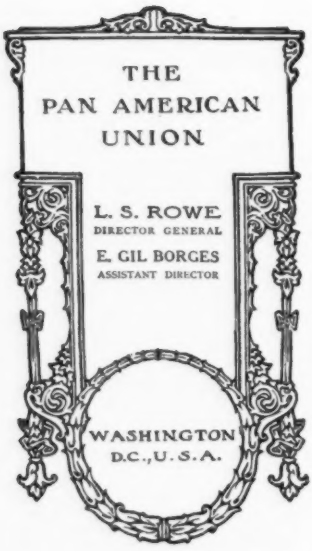
BULLETIN

OF THE

PAN AMERICAN UNION

DECEMBER 1932

SEVENTEENTH STREET AND CONSTITUTION AVENUE NW., WASHINGTON, D. C., U. S. A.
CABLE ADDRESS FOR UNION AND BULLETIN - - - - - "PAU," WASHINGTON



SUBSCRIPTION RATES FOR THE BULLETIN

English edition, in all countries of the Pan American Union, $2.50 per year
Spanish edition, " " " " " " 2.00 "
Portuguese edition, " " " " " " 1.50 "

An ADDITIONAL CHARGE of 75 cents per year, on each edition, for subscriptions in countries outside the Pan American Union.

Single copies, any edition, 25 cents each.

U. S. GOVERNMENT PRINTING OFFICE : 1932

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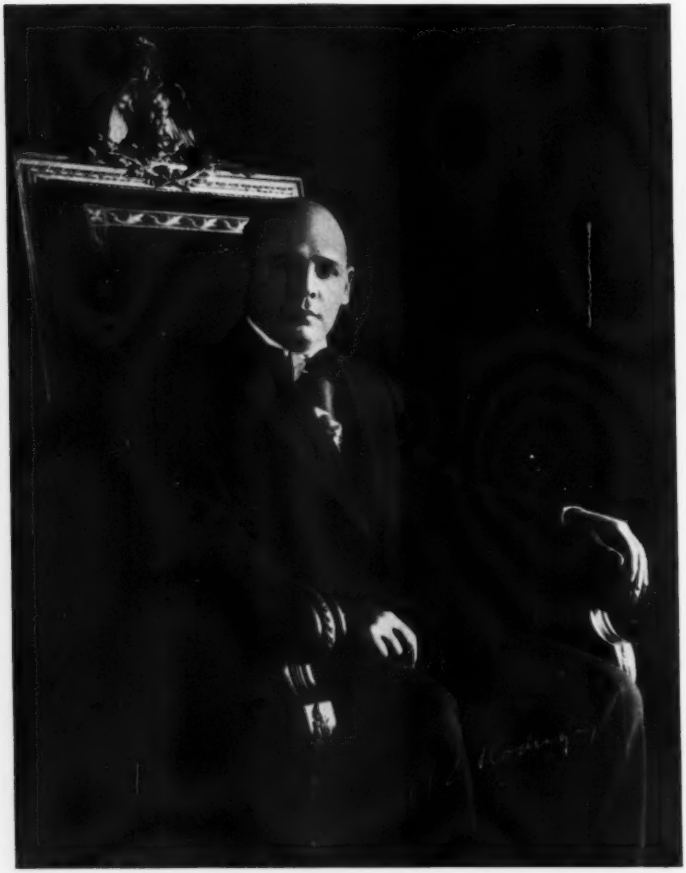

HIS EXCELLENCY GENERAL ABELARDO L. RODRÍGUEZ, PRESIDENT OF MEXICO

Elected by the Mexican Congress September 4, 1932, to fill the unexpired term of President Ortiz Rubio ending November 30, 1934.

BULLETIN
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VOL. LXVI DECEMBER, 1932 NO. 12

GENERAL ABELARDO L. RODRÍGUEZ, PRESIDENT OF MEXICO

GENERAL Abelardo L. Rodríguez, President of Mexico, is one of the youngest men to have held that important office. He was born on May 12, 1889, in San Jose de Guaymas, Sonora, his parents being Nicolás Rodríguez and Petra Luján de Rodríguez. Since his father was one of the founders of the city of Nogales, in the same state, it was there that the young Rodríguez attended school and engaged in business until he entered the Revolutionary Army in 1913. His rise to his present rank of General of Division—the highest in the army—was the due recognition, step by step, of his military ability and valor in the field. He fought in the bravest regiments of Sonora and was wounded at the battle of La Trinidad. As commanding officer of an expedition to Lower California he won further military repute. As a result, he was holding the portfolio of Secretary of War and Marine when he was elected President by Congress on September 4, 1932, to fill out the unexpired term, ending November 30, 1934, of President Pascual Ortiz Rubio, resigned.

From 1924 to 1929 General Rodríguez was Governor of Northern Lower California. His administration of this office brought him well-deserved praise from Mexicans and foreigners alike, because of his successful efforts to promote industry and agriculture, construct highways, sanitate and improve towns, build and maintain schools, and rehabilitate public finances—all measures which converted that Territory into one of the most flourishing sections of the country.

General Rodríguez entered the executive branch of the Federal Government in 1931 as Assistant Secretary of War and Marine, but not long after became Secretary of Industry, Commerce, and Labor. In this capacity he worked energetically for industrial development in harmony with the rights of both labor and capital. From this cabinet post he passed to that of War and Marine, and thence, as has been said, to the Presidency.

He has outlined the main objectives of his program as the creation and maintenance of a stable government and the union of all Mexicans in productive labor for the economic reconstruction of their country.

LITTLE MEXICO NOTE

By Thea Goldschmidt

BETWEEN the houses of José García and Pedro Mendoza in San Antonio, Tex., lies a strip of ground, 12 feet long and 24 feet wide, which belongs to José. It is a barren bit of ground, beaten hard by many generations of footsteps and many footsteps to the generation. To-night it is a festive little spot. On either side is a row of benches, supplemented here and there by kitchen chairs. Already the rows are filled with placid Mexican women, holding their babies on their ample laps and gazing about them with an incurious expression. The men stand about in clusters of twos and threes, their teeth flashing in the light of the smoky kerosene lamps in keen appreciation of some witticism. Children line the fences and roost upon the chicken coops and woodpiles, and from the darkened windows of José's house his numerous progeny peer into the lighted yard. José and his wife, however, are busily arranging last-minute details and exchanging greetings with their friends and neighbors. *Los Pastores*, that hybrid Spanish-Indian, medieval, and contemporary mixture of a passion play, is about to commence.

No definite time, however, can be set for its beginning, for who can say but that Juan, who is to play the part of the Archangel Gabriel, had a bit too much *tequila* to-night (it being Christmas, after all), or that Antonio, the director, prompter, and hermit, is detained at his fruit stand? Neither can one predict how long this show will last. Perhaps the actors are tired and decide to stop at 10.30, or they may feel fresh and continue until 3. The play itself is rather elastic in this respect; the songs may be repeated again and again, or some of the verses may be cut to shorten them. Ritual can be sacrificed to suit the temperaments of the players.

Los Pastores is drama in its crudest form. There are no curtains and no "props," and the setting is almost Elizabethan in its simplicity. Perhaps its first setting, when it was introduced to the Mexicans by the Spanish monks, was in the church, but now it has migrated to the privacy of just such a yard as that which belongs to José. Throughout the Christmas season, from Christmas until Candlemas (February 2), the little band of players goes about to various homes, presenting *Los Pastores*. There is a curious uniformity in the back yards in "Mexican town." Ordinarily they are merely dull rectangles, useful for hanging out clothes, but at Christmas time they serve adequately for a runway, up and down which the actors may tramp, singing out

their lines in fluent Spanish, with the rare lapses in memory quickly checked by their alert prompter.

The strip of ground is bright to-night. At one end is an altar, a rude wooden structure of graduated steps, covered with black sateen. It has a high back wall and a canopy, both of which are draped in black. This is the background for the *nacimiento*, or manger scene. Upon the various steps José and his wife have placed those objects they hold most dear and consider most beautiful: Christmas cards, tinsel, a pincushion in a golden slipper, a small statue of Buddha, and statues of the patron saints of every member of the family. The Star of Bethlehem twinkles at the top, and from the canopy hang streamers of green crêpe paper and dangling paper roses—an anomaly perhaps, but what of it? In the very center of the lowest step, below an image of the Virgin Mary, lies the Child Jesus (a life-sized baby doll) on a platter of gaudy Christmas candies. This modern version of the scene of the nativity is supplemented by small plaster figures of cows, sheep, and donkeys, of sizes entirely disproportionate to the human figures. It is considered a handsome *nacimiento*, and murmurs of "*Qué bonito!*" come to José's ears. Opposite the *nacimiento*, at the other end of the rectangle, is a tent with lurid scenes painted upon it, scenes showing volcanoes spurting fire and brimstone and devils waving 3-pronged pitchforks. Later the emergence of devils from the canvas flap will substantiate the belief that this is a veritable and orthodox hell. Before it, partly for warmth and partly to carry further the realism, is a small and struggling bonfire, which is replenished from time to time by one of the spectators, all of whom seem to enter into the spirit of the play with a great deal of informality.

We, as visitors, are treated with friendliness and are allowed to preempt two spaces on the already crowded bench. After that we are forgotten. It is a clear, cold night. The ground is chilled, and the wind whips around the corner of the house and into the napes of our necks. The proximity of a plump, brown señora is a comfort in such weather, although her baby occasionally sprawls into my lap and is charmingly retrieved by her mother with smiles and apologies. I look across at the row of diverse faces—old and wrinkled women with toothless grins, smooth-skinned young girls, mantilla-covered heads, and the flashing eyes and painted cheeks of an Americanized flapper. And there are fat old men, slim dashing young ones, men with grizzled beards, and others with neat mustaches. Complexions shade from cream to bronze. Everywhere, without exception, there is color—a gay dress, a bandana handkerchief wound about a young man's throat, a scarf, jagged with brilliance.

Suddenly, without any preliminaries, for there is no curtain to be raised and there are no lights to be lowered, a little girl in a stiff white

dress, white slippers, and white cotton stockings begins to walk up and down the runway between the *nacimiento* and the tent which is Hell. The crêpe paper wings on her shoulders flap dismally as she recites the long verse in her soft monotone and punctuates it with awkward gestures. When she is through she steps aside, and, just as casually, there appears a group of shepherds, resplendent in pink coats with tinsel or silver braid trimmings, a beaded satchel slung across the shoulder by a broad red ribbon; each one is carrying a richly ornamented staff, which jangles with numerous tiny bells. Most of these are young men; they shuffle to their places with painful self-consciousness and grin feebly when their friends wink or smile at them. As they arrange themselves, they drone out an endless song, which they will repeat again and again throughout the evening. The words may change, but the tune is always the same. Behind them prances the hermit, the comic relief, who wears a long gray robe festooned with moss, carries a rosary made of spools, and has the mask of an old man. This is really Antonio, and, as everyone has penetrated his disguise, he is greeted with cheers and jokes, for he is very popular. He acknowledges these by growling and shaking his staff.

Last of all come the devils, seven of them, each more imposing than the last. All but Lucifer are dressed in black, with sequins, beads, and mirrors sewed upon their mantles. These catch the light and send back a thousand lights in return. Lucifer wears a suit and cloak of brilliant red, a convincing forked tail appearing from the latter. These devils clank and flash their swords and speak in hollow muffled tones from behind their masks, which represent the grotesque heads of wolves and bears, as well as of imaginary monsters. Each devil dashes out with a Christmas sparkler flaming from his cap, a modern accessory to an ancient custom. Their entry is so precipitate that the women gasp and shrink back, and somewhere along the line a baby begins to cry.

Los Pastores is an interminable performance. The endurance of the audience must be as great as that of the actor. At last there is a lapse, the spectator heaves a sigh of relief, thinks the performance is ended, and then realizes that this is just a pause for breath. There are half a dozen battles between Good and Evil, each struggling for the soul of the Christ Child who was born that day. These are accompanied by the clanking of tin swords and a breathless harangue in Spanish verse. The shepherds sing endless songs, jingling at the same time the bells that hang from their overdecorated crooks. One of them, Bartolo, refuses to go farther on the pilgrimage to worship the Child. He says that he is tired, that he wants to go to sleep, and finally he spreads his blanket on the ground and lies down like a

willful child. His friends cajole, threaten, bribe. One of them, Tulio, pleads with him: "Bartolo, come look on Him with eyes of love," and Bartolo answers testily, "If thou'rt so anxious, bring Him here." At last he is won around, however, and resumes the journey, singing:

To Bethlehem I take the road
With joy my Lord to know;
I offer to the Infant God
This lambkin white as snow.

At length the shepherds reach the *nacimiento*, and after another burst of song each goes separately to worship at the shrine and to kiss the foot of the baby doll that represents the Christ Child. The devils are seen no more; they have been vanquished.

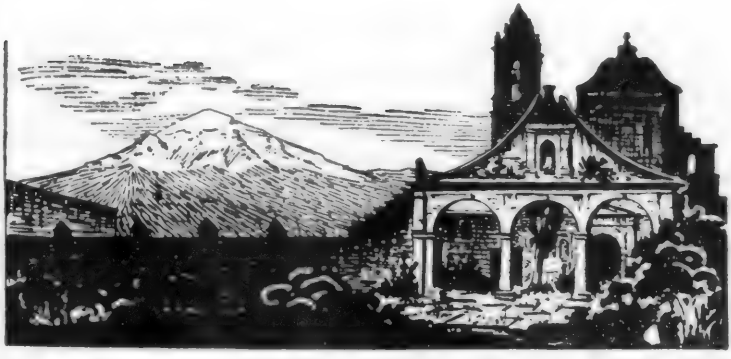
But an Indian bursts from the tent in the full regalia of warfare. The fringes of his buckskin jacket catch the rhythm of his dance and sway with him to a tune sawed from an old violin. Twice he makes a dash for the altar and is driven back by the shepherds. The third time he reaches it, kneels, and pays homage at the shrine. The devils, the stubborn Bartolo, and the savage Indian have all been tamed by the chubby Prince of Peace.

The crowd breaks up, not, however, to go home. Slowly each spectator, the peon direct from Mexico and his almost American cousin, goes to the altar to pay his respects to the Child. The night is growing colder, but there is no hurry. Every face shows that this is a sacred pilgrimage, although it takes but 24 paces. We linger to see José and his wife, their faces wreathed in smiles, distribute candy to the troupe. Then, in groups of twos and threes, the crowd filters away and we with it.

There is no exchange of money here, no bartering, no collection. Every Christmas, during the entire season, this band of Mexican performers goes about to present *Los Pastores*. Juan makes a *nacimiento*, an altar depicting the manger scene, and invites the players to come. It is an honor for them to be invited and he is honored that they have accepted. Each man provides his own costume, and the shepherds even seem to vie with one another to see who can produce the finest staff. One has a betinseled watermelon of papier-mâché topping his staff, and when he strikes it on the ground, the bells jingle and the watermelon falls partly open, disclosing the red heart. Another, of a more mechanical turn of mind, has fastened a dove on his crook. He can manipulate a string and the dove flaps its wings and seems to be on the point of flying away. The shepherds work on these crooks for months, in order to make them as magnificent as possible.

Year after year *Los Pastores* is presented in out of the way corners of San Antonio. Only the initiated can find it, but the process, once

learned, is simple. You go to the fruit stand of Antonio, who directs the players. He will be able to tell you where it will be given, or he can send you to a third party who is sure to know. And, after winding through the maze of streets in Little Mexico, you stumble upon the lighted yard and the crowd, and there is *Los Pastores*. Antonio has played the part of the hermit for 11 years, and he hopes that when he is too old to continue his son will be able to take the part. Antonio possesses to my knowledge the only copy of *Los Pastores* in San Antonio. It is written down in a dirty, worn ledger which he keeps on a shelf in his fruit stand. He teaches the other players their lines, and this is the way that it has been handed down for generations. It promises to continue, for the Mexicans never tire of seeing it again and again. There is some danger from kindly old ladies in conservation societies, who threaten to conserve something that has already been solidly entrenched in the hearts of the people. So far it has not been commercialized. It is a labor of love, one of the few left in the world.



SILVER IN THE WEST AND THE EAST[1]

By Herbert M. Bratter

Bureau of Foreign and Domestic Commerce, United States Department of Commerce

THE utilization of silver by mankind antedates civilization. The white metal has played a unique rôle in the lives of almost every people from the most primitive to the most cultured. Like the veins which characterize the metal as it is found in ore, the history of silver is inextricably intertwined with the history of great nations, assuming now greater and now lesser importance, but never ceasing to be present.

It is no exaggeration to state that silver had a part of utmost significance in the exploration and settlement of Latin America, as, also, in the prosperity of the Spanish Empire. The deeds of brutality and amazing fortitude which that metal inspired are graven deep in the record of conquest. Merely the mention of such names as Cortés and Pizarro, the Inca Atahualpa, Potosi, de la Borda, or Pachuca calls up visions of wealth such as the world has rarely witnessed. Never had the world seen so much silver as was brought by the treasure fleets from Vera Cruz, Cartagena, Amatique, Nombre de Dios, and Porto Bello. The arrival of the white metal in Spain put new life into the economy of Europe, made possible the notable voyages of Magellan, Vespucci, Sebastian Cabot, and, indeed, financed in large part the colonization of Latin America.

One hears fabulous stories about silver in the Spanish colonies. There is nothing mythical about the richness of the mines of Potosi in Bolivia. However, the story of the Indian who discovered those mines by the accidental displacement of a shrub is probably just a "story." These mines were worked by Pizarro and his brother. An interesting tale about silver in Costa Rica is told by Del Mar. So productive were the mines there that, on the occasion when the owner's first child was christened, the father laid a triple row of silver bricks from the palace to the church. Similar stories are to be heard in Mexico.

Among the several estimates available of the silver production of Latin America are those of Soetbeer, Lexis, and Haring. To anyone examining the ancient records of the Spanish trade in treasure, it quickly becomes apparent that the various values as given in the records can be reconciled with only the greatest difficulty and some

[1] Anyone interested in a more extensive and technical discussion of silver is referred to "The Silver Market," Trade Promotion Series No. 139, by Herbert M. Bratter, issued by the United States Bureau of Foreign and Domestic Commerce and sold by the Government Printing Office, Washington, D. C.

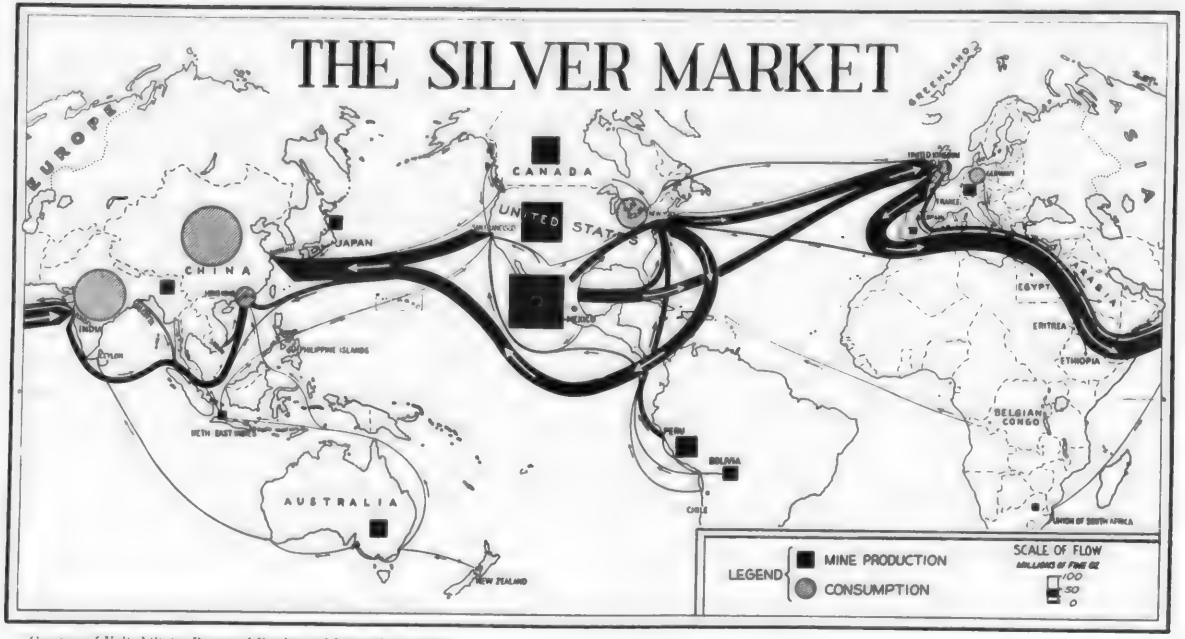
uncertainty. Some very interesting researches in that field were published in 1929 by Dr. Earl J. Hamilton, in the *Quarterly Journal of Economics* (Cambridge).

To-day silver no longer means so much to Europeans as it once did. But, although four full centuries have passed, the Americas still play the leading part in the production of silver. Mexico is still the world's chief silver-producing country, followed by the United States, Canada, and Peru. From 1493 to date, about 36 per cent of all the silver mined has come from Mexico, 21 per cent from the United States, 4 per cent from Canada, and 9 per cent from Peru. To put the matter in another way, from the time of Columbus to the present, about 84 per cent of the silver mined has come from the two Americas; South America has yielded about 23 per cent and North America over 61 per cent.

Naturally there have been changes in the relative position of producing countries. The last-century discoveries of important silver mines in the western part of the United States pushed the United States to a leading position, which it held until 1897. Since then, with few exceptions, Mexico has maintained the first place. Hence, we find that of the 248,000,000 fine ounces of silver mined in 1930 42 per cent came from Mexico, 21 per cent from the United States, 7 per cent from Peru, 75 per cent from all North America and 85 per cent from both Americas.

What becomes of this silver? Some is used in the arts and industries, although relatively little is so consumed in Latin America. Some is used as subsidiary currency in occidental countries. In this connection it is interesting to observe that, despite their importance as silver producers, no American country, not even Mexico, maintains silver as the standard of value. Indeed, silver is to be found as a full standard of value only in China and Hong Kong, to which we may add perhaps one or two small areas elsewhere, of insignificant standing commercially. The bulk of the world's silver is taken by the people of China and India, in which countries the metal is prized as a store of savings. The hoarders of Asia seem to have an insatiable appetite for silver and, but for them, in all likelihood it would have ceased years ago to be classed as a precious metal.

There is presented herewith a map on which has been indicated how silver moved to market during 1930. The squares show the chief mine production of silver; the circles indicate the leading buyers of silver; and the flow lines indicate the movements from mine to "consumer"; and also here and there a return flow, such as that from India to England, or the much smaller flow from England to the United States.



Courtesy of United States Bureau of Foreign and Domestic Commerce

THE PRODUCTION, DISTRIBUTION, AND CONSUMPTION OF SILVER IN 1930

NOTE.—Certain intra-European and overland movements elsewhere are not shown.

The principal steps in the marketing of silver are: The production from American mines; the refining of silver in the New World, especially in the United States; the long-established bullion market of London, now closely rivaled by that of New York; the consumption of silver by the industries and arts and by the mints; and—a matter of major importance—the absorption of the metal by Chinese and British Indians. All of these steps have a part in determining the price of silver, for silver is a world commodity, and its price is a world-wide price.

In recent years the world price of silver has experienced severe depreciation. Thus, whereas the price per fine ounce rose from an annual average of 56.3 cents in 1914 to one of 112.1 cents in 1919, and—despite a severe decline the next year—maintained a level of around 63 cents for nine years, subsequently the average dropped from 55.3 cents in 1929 to 38.5 cents in 1930 and 28.7 cents in 1931. It would be difficult to describe in a short space all the causes which brought about this decline. We must keep in mind that the price of silver is no longer stabilized anywhere by law and that, like the price of any other commodity, it is simply the result of the interaction of demand and supply. The price of any commodity reflects both the commodity value of gold—in other words, the general commodity price level—and, secondly, those conditions peculiar to the particular commodity itself. That the world price level for all commodities has declined severely is in itself enough to explain a very large part of silver's price decline. The index number of wholesale commodity prices in the United States was 100 in 1926, 96.5 in 1929, and only 71.1 in 1931. In September, 1932, it was but 65.3. Gold having thus appreciated greatly, naturally the price of silver in terms of gold has depreciated.

Then, too, there have been special circumstances to depress the price of silver. Some are more obvious, although not necessarily more important, than others. For example, in 1926 the Indian Government decided to sell its surplus stock of silver. Sales commenced in 1927 and, by March 31, 1932, 127,581,564 fine ounces of such silver had been sold. Clearly, this injured the price of silver. If we make a rough estimate of the total supply of silver sold on the market by all sellers annually between 1920 and 1928 (including the British Indian silver, the demonetized metal sold in Europe, and the product of the world's mines), we find there was a decided upward trend. On the other hand, no new outlet made its appearance, India and China continuing to be the largest absorbers of the white metal. The demand of these countries is in turn determined by their prosperity and affected favorably or unfavorably by such factors as good crops, destructive civil warfare or unrest, changes in their balance of pay-

ments with western countries, and speculation. When a severe business depression in 1930 affected the occidental demand for far eastern goods, naturally the natives of China and India were unable to acquire the exchange with which to maintain their large purchases of silver—except at a concession in the price of the metal.

How about the supply of this commodity sold each year? Is it limited to the annual product of the mines? The answer is, "No." In one sense, practically all the silver ever mined by man constitutes the supply, at least potentially, because silver is virtually an indestructible metal. Comparatively little is lost in abrasion of coins or is believed to be otherwise used up or irretrievably misplaced. A large part of the mined silver rests in Asiatic hoards in the form of jewelry, bullion, or coin, and another large quantity of the metal is scattered throughout the Occident in the form of table services, decorative articles, and the like. Such silver does not constitute part of the active market supply. But it may some time be melted and offered for sale. In this manner silver does, in fact, come back to the market at intervals, again and again; the silver quarter in one's pocket may contain some of the very metal taken from the Inca Atahualpa by Pizarro. Silver is, therefore, a commodity which differs from most other commodities—foodstuffs or textiles, for example—because there is practically no limit to the number of times it may be "consumed."

With the world stock of silver being added to each year by the output of mines, this stock, "visible" and "invisible," is clearly many times greater than the new supply currently on the market. The latter, of course, is not any fixed quantity, but varies from time to time, as will be explained. In 1931, for example, the new silver estimated to have been sold on the world market was about 196,000,000 troy ounces. Old silver, obtained almost exclusively from melted coin, and physically transported from a seller to a buyer at least once during that year, added an estimated 60,000,000 ounces. The total of the two figures just mentioned indicates that actual metallic silver to the amount of at least 256,000,000 ounces changed hands one or more times during 1931. There is no available method of calculating the total sales involved in handling this silver—that is, the turnover. A single lot may have changed in ownership many times.

If it is impossible to calculate total sales involved in the marketing of the new production and demonetized metal, it is equally impossible to keep track of what for convenience may be termed the "invisible" silver constantly being bought and sold—that is, of the foreign-exchange transactions of silver-standard countries. This "invisible" silver is an important factor in the silver market. For example, when a Chinese importer of motor cars pays his bill by selling Shanghai taels in order to buy gold dollars, he is adding to the supply of silver

on the world market every bit as much as is the Mexican mine owner when he ships his bullion to the United States. China, the only remaining silver-standard country of importance, annually imports several hundred million dollars' worth of merchandise. That means the invisible supply of silver on the market is increased by that amount; and, just as in the case of the physical metal annually marketed (where the actual metal may be sold again and again), so in the case of this "invisible" supply—foreign exchange—there are sales and resales. In other words, a small group of active Chinese exchange speculators

Photograph by W. V. Alford

OLD PATIO PROCESS WORKINGS, PERU

The process of treating ore by amalgamation was introduced in 1572, when high-grade surface ore became nearly exhausted. After a thorough grinding, the ore was mixed with salt and quicksilver and puddled by the treading of mules. The process has been in use up to the present time by Indians in certain sections of the country.

may greatly augment the volume of transactions in the silver market by buying and selling, rebuying and reselling, silver bullion or exchange between silver-standard and gold-standard countries. Total purchases and sales of all kinds in the silver market are thus obviously impossible of determination.

On the demand side of the silver market, the Chinese and Indian takings of silver are by far the most important, and are generally considered to be in a class by themselves.

The Indian Government has since 1927 been one of the most important sellers of silver, derived from the coins returned from circu-

lation. That government, consequently, has no occasion to import silver on its own account. The Indian imports are private transactions and destined for use by the Indian people in the form of bullion or jewelry, as a store of value—an investment, if you will. In the form of jewelry, silver in India also serves as a token of social standing.

The Chinese consumption is somewhat different from the Indian. The Chinese authorities do not ordinarily have occasion to sell silver on the bullion market, but buy it regularly for coinage. Another difference between the two nations is that China, unlike British India, is on the silver standard. Silver is China's main measure of value and, both in the form of coin and of bullion, it serves the purpose of money. In India the currency is linked to the pound sterling, and the rupee currency circulates at a higher value than, and without regard to, its bullion value, very much as does the peso in Mexico

Occasionally it becomes necessary or desirable for China or India to export silver; but, in the main, those two peoples are heavy importers of the metal and form the chief support of the silver market. For example, in 1931 the net consumption of silver in India and China together was 45.4 per cent of the total sold in the world that year (that total including the sales by the Indian Government and by Indian silver-mining companies). Of the non-Asiatic supply, the consumption of China and India naturally formed a much larger percentage.

The second large factor in the demand for silver is the consumption by the arts and industries in other countries, chiefly in the United States, Canada, Great Britain, and Germany. Without going into too much detail, it may be said that about 44 per cent of the silver thus used is devoted to sterling silverware, about 14 per cent to plated silverware, and 42 per cent to other industrial consumption (for photographic film, chemicals, and the like), these figures being based on 1930 estimates for the United States and Canada. Until 1929 the consumption of silver in the arts and industries revealed an irregular upward trend, but the business depression following that year affected it.

Finally, the consumption of silver in the coinage of subsidiary money in western countries is a considerable factor in the price of silver. Such consumption of silver, however, is more irregular and much smaller than either the purchases of the far eastern countries or the industrial demand of the Occident.

The accompanying table shows the estimated supply of and demand for silver in 1930 and 1931, taking, for this purpose, the estimates published by Handy and Harman, a well-known New York firm of dealers and brokers. The estimates for 1931 are subject to revision.

The silver market in 1930 and 1931

[According to Handy and Harman, "Review of the Silver Market for 1931"]

Item	1930		1931	
	Millions of fine ounces	Per cent of total	Millions of fine ounces	Per cent of total
SUPPLY				
New production	246.8	77.5	196.1	76.2
Sales by Indian Government	29.5	9.3	35.0	14.1
Other governmental sales of demonetized silver	42.0	13.2	24.5	9.6
Total	318.3	100.0	255.6	[2] 100.0
DEMAND				
Net Indian consumption	94.5	29.7	57.0	22.3
Net Chinese consumption [1]	123.0	38.9	59.0	23.1
Total Indian and Chinese consumption	217.5	68.6	116.0	45.4
German consumption	8.0	2.5	28.2	11.0
Arts and industries, United States and Canada	29.5	9.3	30.5	11.9
Great Britain	6.0	1.9	10.0	3.9
Mexico	1.0	.3	1.0	.4
Total arts and industries	36.5	11.5	41.5	16.2
Coinage:				
United States only	6.1	1.9	2.4	1.0
Hong Kong	14.0	4.4		
Otherwise unaccounted for	36.2	11.4	67.5	26.4
Total	318.3	[2] 100.0	255.6	100.0

[1] Includes Hong Kong.
[2] Abbreviation of the items accounts for the slight discrepancy in the summation of these columns.

SILVER'S PLACE IN OCCIDENT AND ORIENT

In certain important respects the function of silver in the economic life of various nations is quite different in the Occident and the Orient. In the latter area it is primarily a store of wealth and, as already stated, in some places a standard of value as well. In the former area it is primarily a commodity produced by miners for what it will bring in the market. Its use as subsidiary currency is a matter of convenience and habit in the West, only remotely connected with the bullion value of coin.

In Mexico the metal takes an important place in that country's list of exports. Since the decline in price during the last few years, however, and the consequent decline in mine production, the importance of silver to Mexico has diminished. In 1929 silver formed about 16 per cent of the value of Mexico's commodity exports; in 1930, 12 per cent. Although Mexico is sometimes spoken of as a silver-standard country, it is not on the silver standard, despite the demonetization of gold in 1931. The quotations of Mexican currency show no relationship with the price of silver, the peso being worth considerably more than its silver content and being kept above the value thereof by limitation of the circulating media.

The United States takes second place as a producer of silver. American mining capital, moreover, is invested in silver-producing mines in various foreign countries, notably Mexico, and to a minor degree in Peru, Canada, Honduras, and Chile. In Mexico, American-owned mines yielded over 54 per cent of the 1927 production. As a part of the United States export trade, the value of silver, including reexports, was equivalent to slightly more than 1 per cent of that of the country's commodity exports in 1931; the figures were $26,500,000 for silver and $2,424,000,000 for commodities. The value of mineral products of the United States in 1929 was as follows:

Item	Per cent
Silver	0. 6
Other metals	24. 8
Nonmetallic minerals	74. 6
Total	100. 0

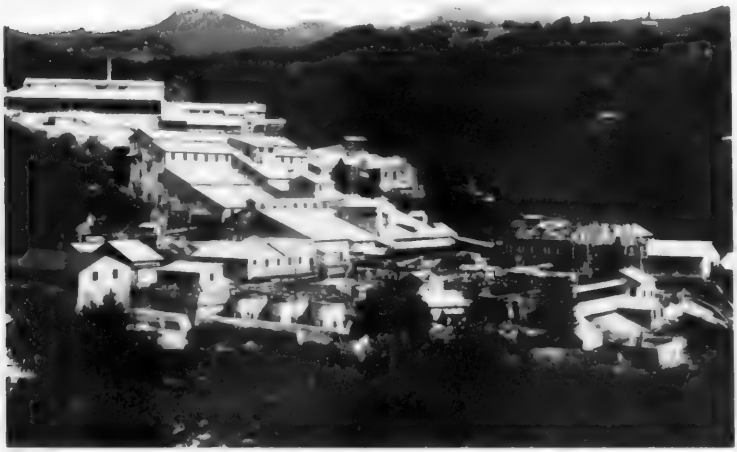
SILVER IN AMERICAN CURRENCY SYSTEMS

The part that silver plays in the United States currency system is sometimes overlooked. From 1793 to 1931, inclusive, the face value of silver money coined in the United States was approximately one-third of that of United States gold coin minted. Of the amount estimated to be in circulation and in the Treasury, on June 30, 1932, the face value of the silver was nearly one-half that of the gold coins. It should be noted that most of the United States monetary stock of gold consists not of coin, but of bullion; hence the part played by gold in our currency system is greater than would otherwise appear. Since, by the act of 1900, the Government is obliged to maintain all forms of American money at parity with gold, silver certificates (which represent standard silver dollars on deposit with the Treasury) are freely accepted by the public at face value, regardless of the fluctuating bullion value of the standard silver dollars they represent. In demanding silver certificates rather than standard silver dollars, the public displays a decided preference for the more convenient paper money. Of the 380,000,000 standard silver dollars in circulation at the end of August, 1932, 350,000,000 were represented by silver certificates.

Compared with all money in circulation ($5,459,000,000), silver certificates and coin (totaling $645,000,000 face value) comprised about 12 per cent. Of this, standard silver dollars and silver certificates in circulation formed about 7 per cent of the total in March, 1932, but standard silver-dollar coins were less than six-tenths of 1 per cent of the total. These percentages represent money in the hands of the public and in banks. It is estimated that 33.4 per cent of the silver certificates and 43.7 per cent of the silver dollars outside the Treasury (in 1928) were in the hands of banks.

It is interesting to observe that, in the currency systems of Latin America, silver has a place not entirely limited to that of subsidiary money. Mexico, as is well known, depends on silver to a large extent for its monetary medium, even though silver is not the standard of value there. In September, 1932, about 250,000,000 silver pesos were in circulation in Mexico.

Four Latin American central banks make some provision for silver in their reserves. In Bolivia up to one-tenth of the notes and deposits



MODERN MILLS NEAR PACHUCA, MEXICO

Since the discovery of silver mines by the Spanish conquerors in 1522, Mexico has maintained, with the exception of a comparatively few years, first place as a producer of that metal.

may be secured by silver. In Colombia, where a 40 per cent gold or gold-exchange reserve is required against the notes of the Banco de la República, an additional reserve of 25 per cent must be held in the form of legal currency; of the latter reserve, half may be silver. Guatemala permits silver in its reserves to the extent of one-thirtieth thereof. Peru permits silver to form one-fifth of the reserve. That country, it may be of interest, has legally limited the minting of silver to 23,000,000 soles, the amount coined to date being at least 17,500,000.

Colombia has recently taken certain steps to circulate silver in a manner not unlike the silver-certificate system in the United States. In October, 1931, Colombia decreed the coinage of 2,000,000 pesos in silver, to be circulated in the form of silver certificates. The banks, moreover, may now keep silver as legal reserve in place of gold.

Argentina and Brazil use no silver currency. Bolivia has only a few old silver coins in circulation. Ecuador uses very little silver currency; Paraguay none. Costa Rica has about 1,500,000 colones of silver coins in use, Nicaragua about $2,230,000, Panama about 500,000 balboas, and Uruguay possibly 12,000,000 pesos.

While statistics are always boresome, it may be of interest to refer to a recent compilation from United States Mint reports, showing coinage of silver by all countries from 1900 to 1929, inclusive, as consuming 2,111,600,000 fine ounces. The leading countries in the list are: British India, 863,400,000; the United States, 236,000,000 Russia, 151,700,000; and Mexico, 150,400,000 fine ounces.

The basic circulating medium of Honduras is silver. Whereas that country was on a fiduciary silver standard for many years, with the peso as the unit, there is now in process a reformation of the currency with a view to basing the currency on gold. The new monetary unit is called "lempira" instead of "peso." Silver lempiras are the major domestic circulating media, backed by a 50 per cent reserve in United States dollars. The shift is being effected from a silver currency, valued according to scarcity, to one valued in relation to the gold dollar, when and if free conversion of lempiras to dollars comes about. The circulation of silver lempiras is now about 1,300,000; soon, it is planned, another 700,000 will be issued.

It is estimated that there are 13 countries and colonies in which silver forms the leading monetary medium, even though not the standard of value. These 13 countries are Anglo-Egyptian Sudan, British India, China, Eritrea, French Indo-China, Honduras, Hong Kong, Iraq, Mexico, Netherland East Indies, Nyasaland, Persia, and Siam. Hong Kong is included, although its trade is largely covered by the Chinese figures. Of the world's merchandise imports, these countries accounted for 7.6 per cent in 1930 and 7.7 per cent in 1931; of the world's exports, 9.5 per cent in 1930 and 9.4 per cent in 1931. They are more important as sellers of merchandise than as buyers.

THE NEW YORK SILVER MARKET

The principal features of the New York silver market are (1) spot silver, the informal telephone market made up of banks, bullion brokers, bullion dealers, smelting and refining companies, and the like; (2) the official price; and, since June 15, 1931, (3) futures, the recently inaugurated trading in silver futures on the National Metal Exchange of New York.

According to long-standing practice, business in silver has for many years been done over the telephone, either by direct negotiation between seller and buyer or through the intervention of a broker. In New York the principal buyers of silver are banks with branches or correspondents in the Far East or in London. These banks repre-

sent the Chinese and Indian demand. The principal sellers are the large smelting and refining companies, which either mine silver themselves or buy it, in the form of ore and unrefined bullion, from mining companies. Sometimes they do both. The large metal companies do not sell silver in lots of less than 50,000 fine ounces. As there are few manufacturing companies requiring silver in such large quantities, purchases by the trade are usually made from bullion dealers, of whom there are two in or near New York. By "the trade" is meant the American and Canadian manufacturers of sterling and plated silverware, principally, and the industrial (chemical) demand. The photographic industry is a large consumer, and the largest manufacturers of film and photographic paper are in a position to buy directly from the leading metal companies.

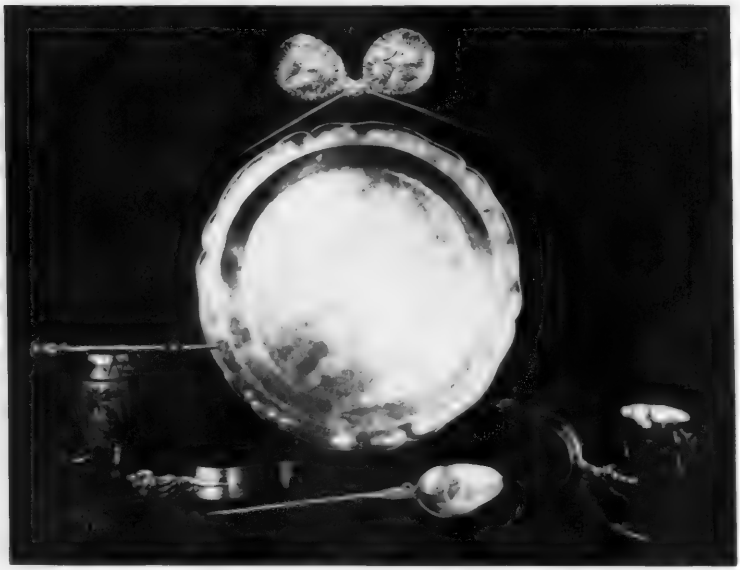
Since the New York market in spot silver is carried on very informally, there is naturally no record of the total business done, nor the prices obtained by traders during any given period. Hence, an informal method of recording the trend of the market came to be evolved—the "official" price of silver.

The "official" price is published in the daily newspapers in New York and the leading metal-market dailies and magazines. The margin by which the official price is usually lower than the prevailing market price represents the carrying and marketing charges.

Mining companies deliver simply crude ore or bullion, which contains a percentage of silver. Probably the ore will be predominantly lead, copper, or zinc. If the quantity delivered is not large, it may be set aside at the smelter until a large enough quantity has accumulated to warrant treatment. Thus, it may be weeks, or even months, before the silver content of such ore becomes available for sale by the smelter. The smelters and refiners prefer not to "take a position" in silver; therefore, they hedge on all silver purchased in the form of ore or crude bullion. Because of the delay that generally occurs in the reduction of the latter, the existence of a futures market is of considerable importance to the metal companies.

Prior to June, 1931, it was possible to make future contracts for delivery of silver in New York by utilizing the foreign-exchange market. By means of such contracts, hedging on exchange contracts involving silver currencies could be arranged on approximately a 90-day basis. Such arrangements were made directly, or with a broker's intervention. But there were no published quotations or other data on the volume of business done.

Since June 15, 1931, the National Metal Exchange (Inc.), of New York, has maintained facilities for trading in silver for future delivery, contracts being made for delivery during the current month or any of the 11 subsequent months. As a result of the initiation of trading in silver futures, it became possible to hedge on transactions in New York involving silver or silver currencies up to one year in



Courtesy of Elena Calderon

ANTIQUE SILVERWARE FROM BOLIVIA

This group of hand-made objects includes two elaborately chased shawl pins, a platter, a silver mounted gourd maté cup, a pair of spurs, a combination pin and spoon, and a small bowl.

advance, instead of three months. This has proved to be a useful facility. The daily publication of details of business done attracted some speculation. The latter feature of the use to which the public has put the new trading facilities has been criticized as disturbing to the market, as it no doubt was during the first third of November, 1931, when speculation drove the price of silver up by 20 per cent and then caused it to drop. However, it may be pointed out that speculation in the Far East will in any case continue to affect silver and Chinese exchange.

THE LONDON BULLION MARKET

The London bullion market was for years the most important market of its kind in the world, and some claim that it still is. There is no doubt, however, that the New York market rivals it very closely in importance and at least on certain occasions becomes more important than the London market. When one thinks of the price of silver being a world price and of all the silver which is being marketed in the world flowing, as it were, into a common pool from which demand is met, it becomes evident that no single market is "the" market. The market is made by the meeting of demand and

supply. The place where the greatest volume of demand and supply is canceled is, for that particular day, the leading silver market. Of course, there is no selling unless there is buying and no buying unless there is selling, in such a market as New York or London. To a large degree, it is believed, silver sold in New York figures again in the London market, where, purchased from America, the metal is resold to British Indians or Chinese. The metal may actually never be sent to London. It may, indeed, be shipped from New York through the Panama Canal or overland to the Pacific Ocean and thence to China. Such a course would not prevent it from being bought and sold in London, due to the wonderful facilities which exist to-day in the way of cable and radio communications. As a matter of fact, it is a very common thing to find silver shipped to one destination on a bill of lading providing for optional delivery at some other place en route or even beyond the first destination. Thus, silver may be shipped from London to Bombay, "option Shanghai," or to Shanghai "option Yokohama or Hong Kong."

The London market being participated in by persons the world over, it might be supposed that such a wide market would be complex in its operation; yet the actual workings are relatively simple. Normally most of London's silver-bullion business is transacted in a 15 or 30 minute meeting, once each business day, of representatives of four long established firms of bullion brokers.

At 1.45 p. m. on week days and 11.30 a. m. on Saturdays the representatives of these bullion brokers meet at the office of one of them. Each of these brokerage firms receives orders from banks and others in England and from buyers and sellers in all parts of the world, the four firms together receiving all the silver-bullion orders coming to London. Such orders may refer to silver for immediate delivery, or for delivery at some future date.[2] For any given delivery—say, spot silver—the brokers at their meeting compare their buying and selling orders (which may mention a specified price or simply "at market") and fix the price at such a level as will effect the greatest number of transactions. It is presumably to the brokers' interest to do this, because their profit depends upon the volume of business they transact. Precise information on the actual conduct of business at the brokers' meetings is not made generally available. What supposedly takes place is that all orders for sale or purchase of silver bullion for spot delivery at the market are compared, then the orders for spot silver with the price specified by the broker's client. The price which will enable the greatest volume of business to be done is usually the price fixed. On a given day it may be possible for the four firms to execute most of the day's business each on its own books.

[2] During and following the war, for 4 years and 9 months ended May 9, 1919, trading in future silver was suspended.

Again, a single broker may have a considerable excess of buying over selling orders, and find it necessary to match such orders with the other brokerage firms' selling or buying orders.

The price of silver for future delivery would, of course, depend upon the spot price, the prevailing rate of interest, and other considerations.

NOT ALL SILVER MARKETS ARE COMPETITORS

The various silver markets are not always competitors. New York, which on balance may be termed essentially a "selling" market, in the long run does not compete with Shanghai or Bombay, essentially "buying" markets. New York and Shanghai or Bombay may be regarded rather as supplementing each other. London's position in the silver bullion market is entirely that of a middleman. In the silver which it buys it is a "buying" market, supplementing New York, and, to some extent (demonetized silver), other markets, and as between London and Bombay, the former essentially is a seller of bullion, the latter a buyer. London is Bombay's chief immediate source of silver bullion.

Speculative transactions involving silver or the Shanghai tael tend to make the world silver market a unit. The existence of almost immediate means of communication makes it possible for a speculator in one part of the world to be a factor in the silver market on the opposite side of the world, to be in and out of that market daily and even more frequently, and to participate in several silver or silver-exchange markets simultaneously.

Of the several advantages London possesses as a silver market, that of being a trade-financing center probably has been of major importance. The silver bullion market first grew to importance in London when silver was much more widely used than now as a standard of value and settler of international trade balances. British capital, moreover, being early invested in mines producing silver, there was an added, although lesser, reason why London's silver market developed. In the case of New York, the international trade-financing factor, although present, has not been the most important, but it has gained considerable weight in recent years. More important has been New York's trade in silver bullion. As silver became essentially a North American product, and the United States for years the largest producer, New York quite naturally came to play an important part in the marketing of silver. While the United States is no longer the leading silver producer, New York's silver market is more important than ever.

THE SILVER CENTURIES

By Adam Carter
Pan American Union Staff

THE optimist who said that every cloud has a silver lining would nowadays need all of his optimism to think that such a lining could be profitably employed. Silver has come upon evil days, and its future is surrounded by uncertainty. But what a glorious past it has! It played a most important part in making possible those voyages which led to the discovery of new lands and seas, and it was one of the main supports upon which a mighty empire was reared. At its call new cities rose, new nations were born, new life was given to the Old World. Ships were built to carry and to protect the treasured metal, fortresses appeared to guard the harbors whence it came, and fortress-like buildings were erected to store it.

The quest for silver and gold sent the Spaniards far into the unknown regions of the new-found world. That they did not always find the coveted riches, or were disappointed in what they obtained, should not be surprising. But their staunch belief that these metals would be found and the fortitude with which they carried out their explorations are truly amazing.

In 1526 Sebastian Cabot, then in the service of the King of Spain, reached the River Plate, and seeing some Indians wearing silver ornaments forthwith gave the stream the name of "Río de la Plata," literally River of Silver. Then he spent three years in those regions, in a fruitless search for the white metal. The ornaments he had seen came from barter with inland tribes.

Cortés was more fortunate in his conquest of Mexico, but the gold and silver he found in the Aztec metropolis whose ruins may still be seen in what is now Mexico City did not come from any near-by mines. The treasure found was so far below expectations that, strange as it may seem, some of the men who had accompanied Cortés afterwards died in poverty. So dissatisfied were the soldiers with their share of the booty that they subjected Cuauhtémoc, the last Aztec Emperor, and one of his lords to torment by fire, in order to draw from them a confession about a treasure the Indians were supposed to have buried. Nothing was learned because Cuauhtémoc could not be made to talk. When his companion cried out to him: "Confess, I can not bear this any longer!" the Emperor replied: "Dost thou think I am on a bed of roses?"

Pizarro, the conqueror of Peru, certainly could not have complained about a scarcity of the coveted metals. He had imprisoned Atahualpa, the last Inca, or King, of Peru, and the ransom, according to some historians, consisted in filling two rooms full of silver and one room full of gold.

A glance at the map of Latin America shows clearly the faith the Spaniards had in silver. Argentina, the country of Cabot's *Rto de la Plata*, derives its name, of course, from the Latin *argentum*. The name *La Plata* was given to cities, provinces, harbors, islands, mountains, and lakes in Argentina, Bolivia, Colombia, Cuba, the Dominican Republic, Ecuador, and Panama.

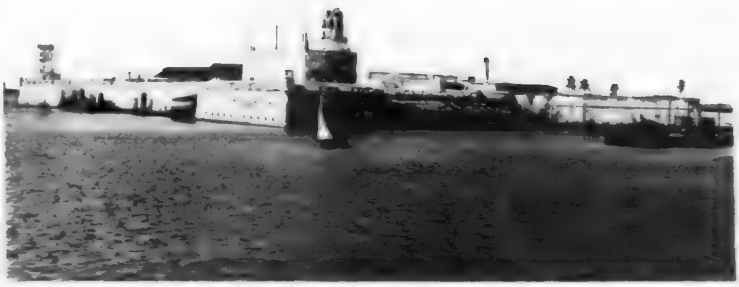
Photograph by I. F. Scheeler

POTOSI, BOLIVIA

The city which was at one time the richest in the New World owed its founding in 1546 to the silver deposits in the mountain which towers over it.

The first silver mines to be discovered by the conquerors in Mexico, then called New Spain, were at Taxco, a little town in the Guerrero Mountains which was then occupied by Indians. This discovery took place in 1522 and marked the beginning of the transformation of Taxco, which to-day is an enchanting relic of colonial times.

The existence of silver in the lofty Mount Potosi in Bolivia was known to the Indians in pre-Conquest days, but it was not until 1546 that the city of Potosi was founded by the Spaniards and exploitation begun. In a little over a year 14,000 people had congregated in what proved to be the richest place in all the new domains. The Potosi mines are credited with having produced a large part of the silver



FORT OF SAN JUAN DE ULÚA, VERA CRUZ

For nearly four centuries this fortress has stood guard in the harbor through which have passed incredible amounts of silver since the first exploitation of the Mexican mines by the Spaniards.

exported from South America. To-day Potosi is decorously conservative; tin means more to it than silver, but the days are not so distant when the city was extravagantly rich, when money overflowed and prices reached fantastic levels. The expression "*Eso vale un Potosí*" (It is worth a Potosi) is still used in the Spanish language to convey the idea of enormous wealth.

The discovery of the amalgamation process in 1557 revolutionized the silver industry and gave it new impetus in Hispanic America. This process consists in applying mercury to silver ores, in order to eliminate extraneous substances and reduce the metal to a pure state. It is generally agreed that credit for its discovery and employment as a practical method belongs to Bartolomé de Medina, a mineralogist born in Seville early in the XVIth century, who came to Mexico in 1555.

At first silver was carried to the mother country in single vessels, but as exports increased the need for better protection led to the formation of the treasure fleets. These armadas, "teeming with men and bristling with arms," as one author has it, sailed at regular intervals over established routes, almost, if not completely, without regard to the operations of enemies. As additional protection, the waters around Andalusia and certain parts of the Indies were policed by war vessels. It was ordered by royal command that the New Spain fleet should leave in April and the Tierra Firme fleet, which served the mainland of South America, in August.

Vera Cruz in Mexico (its full name is "*Villa Rica de la Vera Cruz*"—Rich Town of the True Cross), Amatique in Guatemala, Trujillo in

Honduras, Porto Bello and Nombre de Dios in Panama, and Cartagena in Colombia became the silver ports of the New World.

The treasure from Mexico was taken from the highlands to Vera Cruz over trails that began eight or ten thousand feet above the sea. The output of the Peruvian mines was placed at Callao on the Pacific, or South Sea, fleet, taken to Panama City and thence to Nombre de Dios or Porto Bello, where it was transferred to the Tierra Firme, or mainland, galleons. These also went to Cartagena, the port of call for silver sent down the Magdalena River, from Colombia, Ecuador, and parts of Peru.

Fortifications were erected in all these ports to protect them from all possible enemies, especially against pirates, who never lost a chance to "twist the Spaniard's beard"; Drake played havoc with Nombre de Dios in 1596; Panama City was destroyed by Morgan in 1671, and had to be rebuilt on a better site. But the protection given all these harbors certainly was not to be held in scorn. Cartagena was surrounded by walls so strong that to this day they stand almost intact. The castle of San Juan de Ulúa, in Vera Cruz, ranked as a first-class fortress even in the XIXth century. Besides, history shows that piracy, in this case, did not pay. It emphatically did not, according to reliable sources, cover what may be termed its "cost of production," the amounts of treasure taken from the Spaniards by foreign powers being but a small percentage of what was safely carried over.

The ultimate goal of all American silver was the *Casa de la Contratación*, or House of Trade, in Seville. Here it was weighed by an official and placed in chests in the treasure chamber, whose substantial walls, strong doors, and double iron bars afforded ample protection. Besides, the treasure chamber and chests had triple locks, and one of the three keys required to open them was carried by each of the three officials of the House. To increase the protection, in times of unrest special guards were kept on duty at night.

To give an idea of production in the Indies, it may be said that from 1521 to 1660 more than 37,000,000 pounds of pure silver were shipped to Spain. The fortunes made from silver were, for those days, incredible. The *Veta* (vein) *de la Soledad*, near Pachuca, Mexico, yielded 6,000,000 pesos in one year, 1774. The owner of the mine, Don Pedro de Terreros, celebrated by presenting to King Charles the Third of Spain a 120-gun frigate—the equivalent of a modern ship of the line—and a loan of 1,000,000 pesos without interest.

The output of the *Valenciana* mine in Guanajuato, Mexico, has been estimated at more than 800,000,000 pesos. During the lifetime of its first owner, the Conde de Rul, it produced 226,000,000 pesos. The Count built several magnificent churches, each of which cost from 500,000 to 1,000,000 pesos. On an eminence near the mine he

erected the Church of San Cayetano, which is one of the most beautiful in Mexico. It has three splendid Churrigueresque altars, and once supported a magnificent service, maintained by contributions from the miners, amounting to 50,000 pesos annually.

José de la Borda, another mining magnate, in gratitude for the benefits derived from his enterprises, in 1757 built a church at Taxco which is considered to be perhaps the most complete monument of ecclesiastical art that exists in the Western Hemisphere. Many of the devout people of Taxco still come early every morning to begin

THE CATHEDRAL AT TAXCO, MEXICO

The wealth of silver from mines in the vicinity of Taxco made possible in the eighteenth century the construction of this splendid cathedral by the mining engineer, José de la Borda.

their day by kneeling and praying in front of this church. La Borda also endowed the Cathedral at Mexico City and other churches with princely gifts, and to create a retreat for himself spent more than a million pesos on a magnificent garden, in the Italian style, located at Cuernavaca. The residence built in connection with this garden was later on occupied during the summer months by Maximilian, Mexico's ill-fated Emperor.

Mexico, which has produced more than a third of the world's silver supply, managed to hold its own even during the XIXth century,

when events began to mark the decline of silver. A considerable amount of the metal produced in Mexico found its way to the Far East, and the old Mexican silver peso is said to hold the honor of having been the most widely circulated coin in the world. In China, prices used to be quoted in dollars "Mex."

The future of silver is to-day undecided, and the empire it once supported is a thing of the past. The treasure chests are empty. The harbors whose waters bore the galleons laden with gold and silver bullion have turned to more prosaic pursuits. Some of the old forts are in ruins; grass grows in the moats and weeds have conquered the crumbling stones.

But the walls of Cartagena are as massive as ever; the castle of San Juan de Ulúa still keeps watch over the Villa Rica de la Vera Cruz; and the sun still shines on the brilliant tiles of Taxco's church.

AN INVESTMENT WHICH PAYS DIVIDENDS

By Heloise Brainerd

Chief, Division of Intellectual Cooperation, Pan American Union

DURING the last few years an increasing stream of students from the twenty republics to the South of the Rio Grande has been flowing into the educational institutions of the United States. In 1931-32 over 1,200 were enrolled in universities and colleges, besides many in preparatory, commercial, and technical schools. Realizing the importance of this movement, which is helping the people of the United States to understand the Latin American countries through their acquaintance with these students, and preparing the latter to be interpreters of the United States upon their return home, the educational forces of this country are investing considerable sums in aiding these visitors to secure the training they seek—an investment which yields a steady income of better understanding and cooperation. At the present time about 35 institutions of higher education grant scholarships or fellowships to Latin Americans, and some 40 more offer them free tuition. In addition, generous fellowships are granted by certain foundations and associations. Although the depression has made it necessary to curtail these offers somewhat in the present academic year, a considerable number of students have received such aid, mainly for advanced study and research.

The John Simon Guggenheim Memorial Foundation has brought 15 scholars and scientists from Argentina, Chile, Cuba, Mexico, and Puerto Rico—the only territorial divisions in which the necessary committees of selection have as yet been organized—for the study

of such varied subjects as plant pathology and city planning. These scholars, with the field in which each is specializing, are as follows, by countries:

ARGENTINA: Señor Nicanor Alurralde, civil engineer, Argentine State Railways, Buenos Aires, *Problems of railway engineering and management*; Señor Julio Fingerit, author, and Inspector of Secondary, Normal, and Special Schools of the Ministry of Education, Buenos Aires, *Contemporary literature;* Prof. Ángel Guido, civil engineer, architect, and Professor of the History of Architecture, University of the Littoral, Rosario, *Architecture and city planning;* Dr. Tomás Leandro Marini, Chief of the Division of Fisheries and Pisciculture of the Argentine Department of Agriculture, Buenos Aires, *Marine biology, oceanography, and pisciculture.*

CHILE: Prof. Fernando Devilat Rocca, of the Department of Architecture of the Catholic University of Chile, and Architect to the Board of Public Charities of Chile, *Hospital architecture and the organization of hospital services;* Dr. Manuel Elgueta Guérin, First Assistant in the Genetics Division, Experimental Station of the National Society of Agriculture of Chile, *Theoretical genetics and the application of genetics to the improvement of plants* (continuation of studies); Señorita Aída Laso Correa, Professor of Civil Government in the Academy of Fine Arts, University of Chile, and in one of the public high schools, Santiago, *Organization of educational guidance and students' welfare.*

CUBA: Dr. Carlos Guillermo Aguayo y Castro, Assistant Professor of Biology and Zoology, University of Habana, *Taxonomic studies in malacology and entomology* (continuation); Dr. Herminio Portell Vilá, Instructor in Cuban History, University of Habana, *Historical relationship between Cuba and the United States* (continuation of studies).

MEXICO: Dr. Donato G. Alarcón, physician, president of the Anti-Tuberculosis Committee of Tampico, *Clinical practice and treatment of tuberculosis and methods of procedure in antituberculosis public health campaigns;* Señor Enrique Beltrán, a biologist of Mexico City, who has for some years been engaged in research in marine biology in the waters adjacent to Mexico, *Marine biology, with especial reference to the Gulf of Mexico;* Dr. Juan Farill y Solares, physician, vice president of the Mexican Society of Eugenics; *The clinical theory and practice of orthopædics, with especial reference to the nonsurgical treatment of deformities in children;* Señor Francisco G. Moctezuma, civil engineer, Federal Department of Communication and Public Works, *The theory and practice of water supply engineering with especial reference to the disposition of sewage;* Prof. Moisés Sáenz, of Mexico City, one of the best known leaders of the "educational renaissance" in Mexico,

formerly Assistant Secretary of Education, *Indigenous groups in the southwestern part of the United States with especial reference to educational problems and procedures, as part of the larger problem of the cultural incorporation of the Indian in the Americas.* Professor Sáenz recently completed a tour of Central and South America on a special commission from the Mexican Department of Education for the purpose of studying this question.

PUERTO RICO: Dr. José A. B. Nolla, former Assistant Plant Pathologist, Puerto Rico Insular Experiment Station, *The inheritance of disease resistance in tobacco.*

As this is written, information as to where all the above-mentioned fellows will pursue their studies is not available. Doctor Marini, however, will be at the University of Michigan; Señorita Laso Correa, at Columbia University, and Doctor Nolla, at the Universities of Cornell, Wisconsin, and California. Señor Beltrán is working at Woods Hole and Columbia University, and Dr. Portell Vilá is carrying on research principally in the Library of Congress and the archives of the Department of State.

It will be remembered that the Guggenheim Foundation also grants Latin American Exchange Fellowships to scholars from the United States for study in Latin America, 10 such having been appointed for this year.

At present the Rockefeller Foundation has in the United States six fellows representing five countries. They were appointed as follows:

ARGENTINA: Dr. Rafael Grinfeld, graduate of the University of La Plata, assistant at the Physical Institute and teacher of physics at that University: To study physics at the University of California; Dr. Óscar Orias, graduate of the University of Buenos Aires, Assistant in the Institute of Physiology, University of Buenos Aires Medical School: To terminate in December studies in physiology carried on since 1930 at the Medical Schools of Western Reserve and Harvard Universities.

BRAZIL: Dr. Benjamin Alves Ribeiro, graduate of Sao Paulo Medical School, Assistant at the Institute of Hygiene, Sao Paulo: To continue studies in physiological hygiene and hygiene carried on during the past year, chiefly at the Johns Hopkins School of Hygiene.

HONDURAS: Dr. Guillermo Bustillo Oliva, graduate of the National Institute, San Salvador, with degrees also from the University of Liverpool, Chief of the Department of Infant Hygiene, National Health Department, Tegucigalpa: To study public health administration.

PANAMA: Dr. Amadeo Vicente-Mastellari, graduate of George Washington University Medical School: To continue study of tuberculosis in Jamaica and the United States in preparation for appoint-

ment as Assistant Director of Anti-tuberculosis Work in the Republic of Panama.

PERU: Dr. Alberto Hurtado, graduate of the University of San Marcos, Lima, and of Harvard Medical School, former member of the Research Department of the University of San Marcos: To continue the study of clinical medicine, physiology and pathology in altitude problems in the United States, chiefly in the Department of Medicine of the University of Rochester.

Two women's organizations offer fellowships which were awarded this year to three women from Colombia, Panama, and Chile, respectively. The Latin American Fellowship of the American Association of University Women went to Señorita Paulina Gómez-Vega, of Bogota, Colombia, a member of the staff of the Colombian National Institute of Hygiene. Señorita Gómez-Vega, who had previously studied in the United States, at the State College of Washington and the School of Hygiene and Public Health of the Johns Hopkins University, has returned to the latter to continue her work in the public health field, especially in bacteriology.

The General Federation of Women's Clubs bestowed its fellowship on Señorita Georgina Jiménez, of Panama, a graduate of the Normal School of that Republic and of New York University, with some teaching experience. She is specializing in education and sociology at Columbia University. Señorita Ema González, of Chile, who is studying education at the Ohio State University, is holding for the third year the fellowship of the Ohio State branch of the General Federation.

The Institute of International Education has been instrumental in securing fellowships or tuition scholarships for some 20 Latin American students. In this connection it should be added that an arrangement has been made between the Pan American Union and the Institute, which administers many international fellowships, whereby the Institute takes charge of those offered to Latin American students by universities and colleges in this country.

From funds granted by the Committee on Inter-American Relations of the National Foreign Trade Council the Institute has awarded fellowships to four Argentine students, selected with the assistance of the Argentine-American Cultural Institute in Buenos Aires. Of this group Señor Rodolfo Martínez de Vedia, a graduate of the Engineering School of the University of La Plata, is specializing in industrial organization at the Pennsylvania State College; Señor Isaac Benchetrit, who was trained in the Agricultural College of the University of Buenos Aires, has taken up dairying at Iowa State College; and Dr. David Efrón and Señorita Teodora Efrón, both graduates of the College of Philosophy and Letters of Buenos Aires University, are

studying psychology at Columbia University and Vassar College, respectively.

Furthermore, 15 other students have been given scholarships or fellowships through the Institute of International Education. They come from:

CHILE: Señorita Olga Avendaño Portius, a graduate of the University of Chile, is studying English at Wellesley; Señorita Rosa Huber, who has finished three years of work at the University of Chile, continues her study of English at the Western College for Women; Señor Argimiro Martínez, a graduate of the University of Chile, has a renewal of his scholarship in English and American education at Bowdoin College; Señor Rodolfo Zañartu Arratia, a graduate of the University of Concepcion, is studying at Columbia University general methods of teaching English.

COLOMBIA: Señor Hernán López continues his study of chemistry at Antioch College.

COSTA RICA: Señor Amado Jiménez Rosabal again holds a scholarship in the premedical course at the Johns Hopkins University; Señor Rodrigo Jiménez Rosabal is taking the predental course at Wittenberg College, and Señor Humberto Julio Umaña the premedical course at the University of Florida.

CUBA: Señorita María Teresa Sansón Brunet, who attended the University of Habana for two years, is taking the liberal arts course at Seton Hill College; Señor Eduardo Lens, who received his LL. B. from Tulane University last June, has returned there to work for a higher degree.

ECUADOR: Señor Walter Américo Vela, a graduate of a German preparatory school, continues his studies in economics and international law at Swarthmore College.

PANAMA: Señorita Iva María Sáenz, graduate of the Normal School of Panama, who spent last year at the New Mexico State Teachers College at Silver City, is studying education at the Oklahoma College for Women.

PARAGUAY: Señor Roberto Tomás Allen, of the Colegio Nacional, Asuncion, is specializing in economics at Drake University.

PERU: Señorita Isabel Viñas, who was prepared in private schools in Lima, is studying English at the College of St. Catherine.

PUERTO RICO: Señor Enrique Martínez, who received his premedical training at the University of Puerto Rico, has entered the medical school of the University of Wisconsin.

Moreover, Teachers College of Columbia University has granted scholarships to M. Oscar Charlemagne Boisgris of Haiti, a graduate of the Central School of Agriculture, Port au Prince, to study rural education and educational statistics; and to Señorita Petra Orlando, a

Puerto Rican nurse, who received her training in the Presbyterian Hospital at San Juan and plans to teach nursing.

Miss Betulia Toro of Columbia, a student at the University of California, holds a foreign student scholarship (covering room rent) at International House.

Señor Mario Rodríguez, of Chile, who received his law degree from the University of Chile, was the recipient of a scholarship from the School of Foreign Service of Georgetown University. Señor Rodríguez is a member of the Chilean diplomatic service, being at the present time Second Secretary of the Embassy in Washington.

The facilities offered to Latin America teachers of the blind by the Perkins Institution and Massachusetts School for the Blind are being utilized this year by Señorita María Luisa Soler, a teacher at the Varona Suárez National Institute for the Blind, Habana.

The Master Institute of Roerich Museum has continued the scholarship in music previously awarded to Señorita Elsa Cabrera, a Chilean pianist. Both Miss Cabrera and her compatriot, Señor Carlos Beltrán, who is attending the R. C. A. Institutes, Inc., have been aided by the Chile-American Association, which takes a deep interest in the welfare of Chilean students in this country.

On considering the fields of work in which these students and scholars are engaged, we find that medicine and public health claim the largest number—13, and education the next largest—12. Science as applied to agriculture or industry comes next in order, with biology enrolling five, and physics, chemistry, and agriculture one each. Three students are specializing in English, presumably in preparation for teaching that language, and one is taking a liberal arts course. Two more are carrying on research in engineering problems and as many in architecture. The fields of literature, history, music, international law, economics, foreign service and industrial organization are engaging the attention of the other holders of fellowships.

It is also of interest to note that of the total of 48 students—a number which should doubtless be increased by others who have not come to the notice of the Pan American Union—35 are men and 13 women.

More and more it is being recognized that the wisest policy in encouraging student interchange is so to use scholarships and fellowships as to attract the best prepared and finest type of foreign scholars. That this policy is being followed as regards Latin America is evident from a survey of this fine group of students, who inspire one with optimism as to the excellent results that will flow from their stay in the United States.

A GREAT LADY AND A GREAT PHILANTHROPIST: JUANA ALARCO DE DAMMERT[1]

A GREAT lady and a great philanthropist has passed away in Lima, leaving behind her the monument of a very great work.

Born 90 years ago almost at the dawn of the Victorian era; the descendant of an old colonial family; brought up in the traditions of the past, Juana Alarco de Dammert might have fulfilled her destiny by being no more than a grande dame of the old school. Instead, she became the most advanced woman of her age. Possessed of an indomitable will, and endowed with a charm of manner which she knew how to exercise for whatever end she had in view, she carried into execution, in the backward Lima of 40 years ago, a series of charitable works for the welfare of children which were almost in advance of the times. Her task was rendered the more difficult in that she set herself to its accomplishment when the capital was only just recovering from a prolonged period of political unrest and civil warfare. "Fearless, resolute, outspoken," it has been said of her, "she should have been a man." More truly might it be said that she carried out a man's work with the sympathy and tenderness that only a woman could give.

The crowning recognition of Juana Alarco de Dammert's work came in 1922, when a bust was erected to her honor in the Parque Neptuno. The anniversary of the unveiling has been faithfully observed every year since. On December 8 the pupils of the Lima schools and delegations from all the educational institutions of the Republic assemble around the bronze memorial to pay their tribute of homage to the great lady who had done so much to advance the cause of poor children.

In latter years Juana Alarco de Dammert had become almost a tradition in Peru. But it was still an active tradition. To the end of her days she maintained the deepest interest not only in the institutions which she had founded but in everything that concerned the welfare of her fellow men. Preserving her faculties to the last, she gradually faded away and died on August 2, 1932. The funeral took place on August 4, and was attended by a large following, representative of all elements of society. The mass of floral offerings placed at the foot of the bust in the Parque Neptuno was further tribute to the affection and honor in which this great philanthropist was held.

[1] From "The West Coast Leader," Aug. 16, 1932.

Juana Alarco de Dammert first came into public notice in 1895. In the terrible street fighting of March 17 and 18 following upon the entry of Nicolás de Piérola and his troops into Lima, some 2,000 lives were lost, while the number of wounded was beyond calculation. The hospitals lacked accommodations to attend to one-quarter of the cases. It was at that hour that Señora de Dammert set to work to raise a body of volunteer nurses under the title of the Relief Committee (*Comité de Auxilios*) who, herself at their head, attended to the wounded in the building formerly occupied by the French Fire Brigade in the Portal del Teatro. From this great work

JUANA ALARCO DE DAMMERT

The Children's Aid Society of Lima stands as a monument to this Peruvian woman who throughout the greater part of her long lifetime was an indomitable worker in the interest of poor children.

sprang into being the Peruvian Red Cross Society. This was followed two years later by an even greater work. The Civil War left as its aftermath the most abject poverty among the working classes of Lima. The prevailing distress was further aggravated by the terribly insanitary conditions under which the laborers of the capital were housed. Infant mortality stood at an accusingly high figure; and all the great heart of Señora de Dammert was stirred to the depths by the distressing spectacle which every street offered of rickety, undernourished, diseased children with only the streets as a home when the parents were at work.

The outcome was the formation in 1897 of the Children's Aid Society (*Junta de Defensa de la Infancia*) with the crèche, or day nursery, in the Calle Los Naranjos as one of its most important activities. For nearly 30 years Señora de Dammert remained at the head of this great organization which then, as now, could be kept alive only by philanthropy. With advancing years, she yielded place to her daughter, Señorita Luisa Dammert, who is following in the footsteps of her mother with the same tenacity of purpose and the same real interest in the welfare of poor children.

HER GREATEST MONUMENT

The day nursery was opened in 1897 in an old colonial building, which it has occupied ever since. From that day to this more than 2,000 children have been entered on its books. But mere figures tell no tale of what the crèche has accomplished. Only a visit to the institution can make really intelligible what the work is and how it is carried out. Perhaps to that should be added a visit to the homes of the children themselves to appreciate the conditions under which they would have had to be brought up, were not this crèche, this real home for the homeless, here to save them. One would also have to see the state in which these children arrive at the crèche in the morning: the same children when they have been bathed and (in the case of babies) reclothed in the garments of the institution; and once again when they leave at night, after a wholesome, happy day, clean, contented, and well fed.

No child is turned away. From the age of three months up to five years they are received without any requirement save the assurance that the mother is not leading a notoriously immoral life. A daily fee is charged: in the case of babies, 5 centavos a day; in the case of older children, 10 centavos. In return for that they are clothed when they come shoeless or in utter rags; their bodies and their linen are washed; their sores and slight sicknesses are tended; and they receive two solid meals a day, in addition to the bottle of milk which is given every baby when the mother calls for it on her return from work.

HEALTH AND CLEANLINESS

Facing the entrance in the main courtyard is the consulting room, where every child is examined on admittance and where two physicians are in daily attendance to give such treatment as may be necessary. In too many cases some treatment or other is needed, since the children, almost without exception, come from the poorest homes in Lima. (Though to see the same children, clean, decently clad, well fed, in the precincts of the institution between the hours of 8

and 5, one would scarcely suspect it!) No serious cases of sickness are treated in the crèche itself; for such there is the Juana Alarco de Dammert Ward in the Children's Hospital. But there is always the fiend of chronic malaria to contend with, the chronic malaria which rages everywhere in the slum districts of Lima. There is tuberculosis, which still keeps infant mortality at an unduly high rate. There are skin diseases, some due to the sins of parents, others to undernourishment and neglect. And finally there are the verminiferous.

Even in the case of contagious diseases of the skin, children are not refused admission. They have a department of their own on an upper floor of the building where, kept isolated from the rest, they receive the treatment which their poor, tender, suffering bodies require. For one and all there is the appropriate treatment, with nurses and doctors to apply salves and injections and a wholesome food régime to aid the cure. . . .

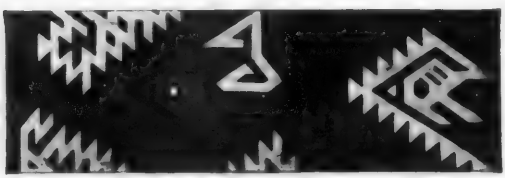
THE KINDERGARTEN

The kindergarten section of the crèche opens upon an inner patio, bright with shrubs and flowers. But the most beautiful flowers of all are the children themselves. There is no happier, more care-free spot to be found in all Lima than this. Here, children between the ages of 4 and 6 years receive their first lessons in what, from a scholastic point of view, is usually termed "education"—the letters of the alphabet and the numerals. The system followed is that of Froebel combined with that of Montessori. It is all a game, a very delightful game, from the point of view both of pupils and teachers, this education under the guise of play; but the results speak for themselves. They speak, first of all, in the excellent manners of the children, in their natural discipline, in their merriness which never degenerates into rowdiness (as it would in the streets), and secondly in the exhibits of their work which are proudly shown in glass-fronted cases wherein every pupil has the ambition to see some specimen of his or her handiwork displayed for the admiration of visitors. These exhibits range from sketches of fairy tales in colored chalks, models of trees and houses and animals in multi-colored papers, crowns for the Carnival Queen of the school and (not less highly honored) the crown of the Model Child, down to handkerchiefs and table covers, sewn and embroidered by the pupils themselves. Every now and again the children of the kindergarten take some present home to their parents. It usually consists of a handkerchief or a cloth of their very own handiwork. The crowning exhibit of all is a large doll's house, a complete establishment in which every article of furniture, from beds and wardrobes and stoves and chairs and tables down to a Lilliputian desk in which the

drawers actually pull out as smoothly as if they had come from a factory, was made of cardboard by the children themselves. . . .

THE STAFF

The management of the crèche is in the hands of Sister Elisa Wieck, who has held the post for the last eight years. Sister Wieck gained her experience in a more strenuous school than that of kindergartens. A native of Baden, after studying at Hamburg, Munich, and Mannheim, where she graduated with a professor's degree, she served during the war with the German Red Cross, at first in Tsing-Tao and later on the French, Russian, and Rumanian fronts. She came to Lima at the conclusion of the war, and to-day is carrying out the greatest work of her life. Sister Wieck has under her a staff of about 30 employees, including nurses and teachers. One and all of the personnel, from the head down to the kitchen staff and the laundry maids (who have as hard a day's work for six full days in the week as any man or woman in Lima), are imbued with the spirit of the institution. They are proud of it and of the work which they are carrying out in the cause of infant welfare—the cause which the foundress, Juana Alarco de Dammert, had so much at heart. . . .



MEDICAL RESEARCH IN LATIN AMERICA

By A. A. Moll, Ph. D.
Scientific Editor, Pan American Sanitary Bureau

II. Modern Times *

As professional conditions became more or less stabilized in Latin America in the first part of the XIXth century,[32] a period of discipline and trial followed, during which, after going to school in France,[33] a number of outstanding men introduced into their own countries modern medical advances and especially surgical methods.[34] Far-sighted statesmen like Rivadavia offered for this purpose fellowships abroad, and almost from the beginning a wish was stressed to develop native talent.[35] From such a stage of training and groping Latin America was soon to emerge with a most valuable contribution of its own. Arbitrarily, but not illogically, we may begin this new era with Finlay's pioneer work, as it followed quite closely and supplemented Pasteur's discoveries.[36]

Yellow fever.—It was at the second of the international health or medical conferences held in the Western Continent, in Washington, in 1881, that the Cuban scientist—incidentally, educated in France and the United States [37]—first enunciated his theory of the rôle of the

* Part I of this article, which appeared in the November issue of the Bulletin, dealt with the beginnings of medical research in Latin America. In Part I, p. 779, sixth line from the bottom, the words "castor oil" should be "cascara sagrada."

[32] The trips of Humboldt, the "Columbus of Science," undoubtedly gave much impetus to all research, including medical subjects.

[33] The whole medical world did likewise in the fruitful years beginning with Laënnec and reaching their climax with Pasteur. Even in the XVIIIth century many of the teachers of anatomy were French or followed French procedure. Bullfinch, the first man from the United States to study medicine in Europe, completed his medical education in Paris in 1721. The four men, Shippen, Morgan, Rush, and Kuhn, who founded the first medical school in the present United States, had all studied in Paris, as did Warren, Holmes, Cushing, and Gerhardt at a later date.

[34] The first stethoscope, brought to Rio by Fernandes Tavares, in 1823, one of the first in the Western Continent, is still on exhibition at the Rio Academy. Surgical operations were everywhere introduced at first with some timidity. Surgical antisepsis became popular in the 80's. In Mexico the first cephalotripsy was performed in 1840 by Vértiz, Jiménez, and Clement; the first Cæsarean section on a live woman, accidentally, by Jiménez, in 1850; the first symphysiotomy, also accidentally, by Tellechea and Ortega, in 1869; the first Porro's operation by Rodríguez, in 1884. In Colombia the first Cæsarean dates from 1860; in Guatemala, from 1864; the first successful one (by Baca), from 1871; the first ovariotomy (by Ponte) in Venezuela, from 1881; the first tracheotomies and tenectomies in Brazil, from 1843; the first hysterectomy, from 1887; in Argentina the first pubiotomy (by Cantón), from 1904; in Brazil (by Rodríguez Lima), from 1905. In 1603, Dávila in Lima had removed from a little girl a stone weighing 1½ ounces.

[35] The Buenos Aires Medical Academy, as early as 1826, placed itself on record against the importation of a few transient notabilities without roots in the soil.

[36] Beauperthuy had anticipated the new times when he wrote: "Our epoch leans visibly toward preventive medicine and public and private hygiene. The Golden Age of Medicine has not arrived as yet."

[37] One of his teachers at Philadelphia was Dr. J. K. Mitchell, who, as early as 1849, had defended *a priori* the germ theory of disease. A Frenchman, Devèze, at Philadelphia (1793) had been the first to uphold the noncontagiousness of yellow fever.

mosquito in the transmission of yellow fever.[38] Half a century has elapsed, but the three postulates set on record then still remain the basis of our knowledge of the disease and the best proof of the caliber of the man, as modest as capable, who defined them. The history of medicine registers no greater achievement than Finlay's work, so admirably supplemented by that of Reed,[39] Carroll, Lazear, and Agramonte [40] in 1900, and by Guiteras' experiments. For the first time it had been proved that a human disease was transmitted by an insect, and man had been provided with means to eradicate it, thus redeeming some of the wealthiest portions of earth, so far the prey of this scourge.

Let us not forget here that in 1885, only a few years after Finlay's statement, Utinguassú, in the Academy of Medicine of Rio de Janeiro, asserted independently that the mosquito must be the carrier of yellow fever. This is also the proper place to refer to the performance of Ribas (1862–1925) and Cruz in Brazil. Not three months had elapsed since Reed's announcement at the Indianapolis meeting of the American Public Health Association (1901) that at last the cause of yellow fever had been definitely demonstrated when Ribas, then director of the public health service of the State of Sao Paulo (1898–1917), published at Sao Paulo a paper quoting previous epidemiological experiences of his own since 1896 which enabled him to indorse unqualifiedly the new doctrine.[41] As a result of Ribas' excellent work, yellow fever became extinct in Sao Paulo in 1903, even before it was wiped out in Cuba or in Rio. To Ribas we also owe the famous Butantan Institute, where Vital Brasil was to perform his meritorious task; the first arguments supporting the independence of alastrim as a disease; the first child-welfare section in a health department in Brazil and probably in all Latin America; the tuberculosis sanatorium at Campos de

[38] In his momentous and matter-of-fact statement at Washington, Finlay did not actually mention the mosquito, but he did so a few months afterwards, at Habana, in August, 1881. When the American Yellow Fever Commission visited Habana in 1879, Finlay was still feeling his way about, and could only suggest atmospheric alkalinity as a possible cause of yellow fever. The report of the Commission, and especially its destructive data on many theories, must have proved useful. Finlay himself credited his final views to reading in a botanical work of the rôle filled in the rust of wheat by the spores of *Puccinia graminis* which must be carried to another plant to complete their life cycle and acquire their disease-causing power. It is interesting to recall that the Commission included two men who had much to do with Finlay afterwards: Sternberg, who appointed the 1899 Yellow Fever Commission, and Guiteras, Finlay's loyal coworker and successor.

[39] The United States Army Commission, headed by Reed, gave to Finlay's theory, even using his own mosquitoes, the solid experimental basis it had so far lacked. Gorgas was to make it a practical reality by putting it immediately to work in freeing first Habana and then Panama from yellow fever and also malaria. It is interesting to note that Unanue, in the latter part of the XVIIIth century, blamed the prevalence of intermittent fevers on the foul smells from stagnant waters, and recalled that, to safeguard themselves, the Indians used to build their homes on hills.

[40] Agramonte was to close his useful life at New Orleans as professor of tropical medicine at Tulane University, in contrast to his countryman and coworker, Guiteras, who, before going to Cuba, spent some profitable years in a similar capacity at Philadelphia.

[41] It is not so well known that Ribas, with Adolpho Lutz and Oscar Moreira, as well as another group of Brazilian volunteers, allowed themselves, in 1903, to be bitten by mosquitoes which had fed on yellow fever patients, thus confirming anew the Habana achievement. Recent contributions to yellow-fever control must include those of the Brazilian Torres, Aragão, Costa Cruz, and Lemos Monteiro, and the Cuban Hoffmann.

Jordao; and the model Santo Angelo leprosery. What Ribas did at Sao Paulo, Oswaldo Cruz was to accomplish at Rio (ridding the city of yellow fever, creating laboratories, promoting research and developing health organization) on a larger scale, and in a briefer period, as if he knew that his days on earth were numbered.

It may be well to take up now, separately, some special subjects.

Hookworm disease.—In Mexico, Lobat first called attention, in 1854, to the presence of hookworm disease, and shortly afterwards Jiménez discussed possible causes and Manuell for the first time found the parasite in a patient.[42] In Brazil Wucherer in 1866 pointed to the

FINLAY'S BUST IN HABANA

This bust in the patio of the Department of Public Health and Charity is but one of various tributes rendered by his grateful country to the modest scientist whose epoch-making discovery of the transmission of yellow fever by the mosquito proved a boon to the entire world.

worm as the cause of the *opilação* known in the country since 1748. Durán, equally noted as a statesman and a physician, is supposed to have been the first in Central America (1896) to diagnose the disease, as he also was to do later with beriberi. In Colombia Posada Arango, who also distinguished himself as an astronomer and a naturalist, identified the local *tuntún* as uncinariasis, and in 1887 introduced *higuerón* juice as a remedy whose value was fully proved by his countrymen Robles and Montoya.[43] In 1903 Rangel, then chief of the laboratory of the Vargas Hospital, rose before the Caracas Academy of Medicine, with the modesty of a country boy but with the scientist's assurance, to report that he had found hookworms in autopsies made in cases of

[42] This is almost at the same time that Bilharz and Griesinger brought out the importance of the infestation in Egypt and long before Leidy (1886) mentioned hookworm as a possible cause of anemia.

[43] Calle and Lázaro Uribe used the drug afterwards against whipworms. A Brazilian farmer called Gracio seems to have been the first to use it medically, about 1882.

tropical anemia. In Puerto Rico Ashford was in 1900 to connect dramatically this worm with the anemia which had long exhausted tropical laborers; with him cooperated Gutiérrez Igaravídez and González Martínez in devising methods of control which afterwards found world-wide use.[44] This enterprise, extended by the Rockefeller Foundation to the whole world, represents another landmark in modern public health work, as it offered the means of restoring to a gainful life millions of people up to then helpless and suffering.[45]

Typhus fever.—Mexico's contributions to our knowledge of typhus fever are both numerous and distinguished. León, the historian, showed the antiquity of *matlazahuatl* on the land. From 1869 to 1919 at least 175 papers were published on the subject, and the physicians who have fallen victims to the disease may be counted by scores. Miguel Otero spent many years and all his fortune on studies which included human inoculation, and finally lost his life, in 1915, when fighting an epidemic and treating patients. Marín, of Puebla, suggested that bedbugs and fleas might transmit typhus, and Toussaint, in 1906, unsuccessfully tried on himself transmission through fleas, bedbugs, and mosquitoes. Ricketts repeated this work, but went further, demonstrating the rôle of lice, and was engaged in the study of typhus fever when he died from it in 1910, in the old Institute of Hygiene, in Mexico City. In this same city Mooser has recently established in a more definite way the relation between rickettsias and typhus fever, thus extending the work of the Brazilian Rocha Lima in the Butantan Institute and also confirming Neill's report on a new sign of typhus in the guinea pig. Other Mexicans, including Ochoterena, Ruiz Castañeda, and Varela, have done valuable work, and Ruiz Castañeda, with Zinsser, brought forth a preventive vaccine.[46] It seems, therefore, very proper that the basic investigations of Ricketts, as well as those of Anderson and Goldberger, should have been performed in Mexico. The research done in Brazil by Prowazek and Rocha Lima has also added a great deal to our knowledge of the disease and its causative agent. Important work on typhus has recently been done by Lemos Monteiro, Toledo Pizá, and Fialho, in Brazil, in Peru by Weiss and in Chile by Kraus.

Verruga peruana.[47]—No more altruistic piece of work is recorded in the history of research than that performed by the medical student, Tomás A. Carrión, when, in an attempt to verify the infectiousness

[44] For Argentina and Brazil, Parodi, in 1920, reported a form of the worm which he called *Necator argentinus*, but which seems a mere variant of the *americanus*.

[45] General Wood once stated that the conquest of yellow fever justified the Spanish-American War. Justas much may be said of the developments in hookworm disease control.

[46] This seems to mean improvement over that of Weigl.

[47] Verruga peruana is a disease consisting of acute fever, pernicious anemia, and local tenderness. This disease, limited to certain valleys of the Andes, has also been called locally Oroya fever. The first lay writers to mention verruga peruana were Gomara (1553) and Zárate (1555); the first physicians Gago de Vadillo (1630), Bueno (1764), Unanue (1806).

of verruga peruana and disprove the erroneous views of some investigators, he inoculated himself at Lima, on August 27, 1885, with material from a case of the disease which was to be connected with his name. Carrión died, as a result of his experiment, on October 5, 1885, when barely 26 years old, a true scientist to the end, describing step by step the course of his illness. A number of his countrymen were to take up the task and cast new light on the disease. Barton, in 1901, found the causative germ, later to be isolated and grown by Hercelles (1925) and Noguchi. Other Peruvians who worked in this field are Arce, Vélez López, Rebagliati and Gastiaburú, Mackehenie, Odriozola, Weiss, and Battistini. This work still continues and has received the collaboration of Americans from other republics, including Rocha Lima, Strong and Shannon.

Onchocerciasis.—Robles, of Guatemala, in 1915, was the first man to call attention to the presence in the coffee sections of his country of a new disease (afterwards also found in certain Mexican districts) caused by a special worm called *Onchocerca caecutiens* from its tendency to cause blindness. Other researchers who have gathered data on the disease are, in Guatemala, Calderón and Muñoz Ochoa; and in Mexico, Ochoterena, Hoffmann, and Dampf. The Harvard Commission, headed by Strong, in Guatemala, has shown that certain sand fleas act as carriers, thus furnishing knowledge useful in controlling a disease whose spread is causing some alarm.

American leishmaniasis.—The names of uta, espundia, and bubas have been applied locally to a skin disease already appearing in the old Inca huacos and embracing at least regions of practically every South American country. As early as 1759 Sauvage and Charlouis described cases. More definite information was furnished in Peru by Tamayo in 1890; Avendaño and Flores (who even referred to a bacillus as the cause) in 1892; Barros in 1895; Ugaz and Saménez in 1901; and afterwards Tamayo and Palma, who showed the identity of the disease with that shown in pre-Columbian images; and Escomel, Vélez López, and Monge; in Brazil, Cerqueira in 1892, Adeodato in 1895, Moreno in 1896, Breda in 1899, and finally Lindenberg, Carini, and Paranhos, who in 1909 found for the first time in the sores the *Leishmania* organisms and showed the kinship of the condition with oriental sore, and Splendore, who in 1913 presented the mucous types, more serious than the cases limited to the skin. Cases in other countries were reported by Zagárnaga in Bolivia, Sommer, Da Matta, and Mazza in Argentina, Picado in Central America, Connor and Bates in Panama, Flu in Dutch Guiana, Seidelin and Incháustegui in Mexico, Migone in Paraguay, Iturbe and Tejera in Venezuela. All these men have done very important work, separating the condition from other diseases and determining its geographical extension. In Brazil, where the most and the best work has been done, Vianna in

1911 introduced tartar emetic into the treatment. This has proved specific and is also used successfully in the Asiatic and European forms.

Chagas' disease.—Chagas discovered among Brazilian children in 1909 a new form of trypanosomiasis characterized by enlargement of the thyroid and the spleen, and transmitted by a local bug, a *Triatoma*. This condition was afterwards found in other South American countries. The causative parasite was named after Cruz; the disease, at the suggestion of the illustrious Couto, after Chagas. It was afterwards reported from other countries, Argentina, Venezuela, Peru, and El Salvador, and lately by the Gorgas Memorial Institute from Panama.[48]

American blastomycosis.—For some time several South American skin diseases were grouped together. One of them, already described in Argentina by Del Valle in 1901 and Sommer in 1914, was a condition which in 1914 Escomel reported in Bolivian and Peruvian patients was not caused by leishmanias but by blastomycetes. Hence the name of American blastomycosis was suggested. The disease was then described in Bolivia by Morales; in Venezuela by Iturbe and González; in Colombia and Central America[49] by Peña Chavarría.

Mycoses.[50]—With regard to *carate*, *ccara*, and *pinto* (already known by the Aztecs), practically all our basic knowledge was gathered by American authors, and especially Brazilian (de Fonseca, Area Leão), Colombian (Montoya y Flores, Urueta), Mexican (González, Pallares, Ruiz Sandoval, Iturbide, Saucedo, Andrade), Peruvian (Escomel), Ecuadorean (Suárez, Lasso Meneses), and Venezuelan (Medina Jiménez, González). The first to describe *pinto* were Palanco in Mexico (1760) and Velazco in Colombia (1780), while the first thorough study was that of the Frenchman Alibert in 1829. Gastambide seems to have found a fungus in 1881. Cerqueira, in Brazil, was the first to report a black ringworm of the hand. In Argentina, Wernicke first described in 1890 granuloma coccidioides—one of the first diseases known to be exclusively American—and his pupil, Posadas, amplified our data. Piedra has been studied in Brazil by Horta, who differentiated the Brazilian from the Colombian variety and had the causative organism named after him; Rabello, Parreiras Horta, Fonseca, and Area Leão; in Argentina by Oriol Arias and Parodi, and in Paraguay by Delamare and Gatti.

Snake poisoning.—Lacerda, a pioneer in biology, began in Brazil the study of poisonous snakes with that of other animal and plant poisons. In 1902 Vital Brazil, deeply impressed on his return from France to his country by the thousands of deaths caused each year by

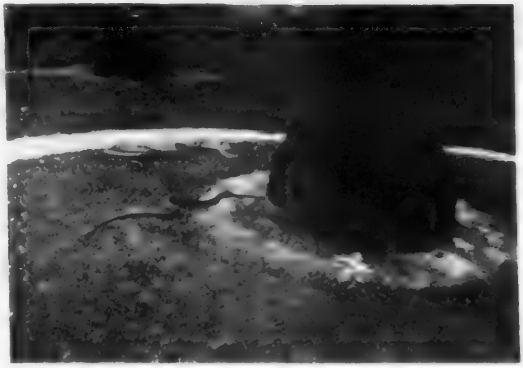
[48] The germ has also been found in Honduras by Robertson and in Chile by Sassa Mazzi.

[49] Weiss seems to consider at least some of these cases as secondary infections to leishmaniasis.

[50] In medical parlance, mycoses are diseases caused by fungi or yeasts.

THE FAMOUS SERPENTARIUM AT SÃO PAULO

Such men as Brazil and Kraus now have a worthy successor in Amaral at the Butantan Institute where antivenom serum is prepared.



snake bites, organized the Butantan Institute at Sao Paulo, where, among other sera, antivenom serum is manufactured.[51] His successors and pupils, Gomes and especially Amaral, while continuing the serum production, have systematized the classification of snakes, and Amaral was invited for a similar purpose in recent years to the United States. The subject has also been studied in Colombia by Carral and García; in Mexico by Cuesta Terrón; in Costa Rica by Alfaro and especially Picado, through whose efforts deaths from snake poisoning have decreased enormously in that country. The physicians of the United Fruit Co. have lately been contributing to the subject. Useful analyses of the poison have been made by Veillard and Assumpção in Brazil; Houssay and Sordelli in Argentina. Scorpion bites and their prevention have been investigated by Magalhães and Carvalho in Brazil, and Córdova y Gurría, Hoffman, and Cuesta y Terrón in Mexico, and spider bites by Puga Borne and Tirado in

[51] Vital Brazil has lately continued his good work in his present post at Nicteroy.

Chile, and Escomel in Peru. Hoffman and Embil have investigated *barracuda* (a fish) poisoning in Cuba.

Basal metabolism.—Ozorio de Almeida pointed out in Brazil that among tropical dwellers basal metabolism rates were lower than among people in the temperate zones. In Cuba Montoro corroborated the assertion, later disputed by Coro.

History.—Among those cultivating with brilliance the field of medical historiography and entitled to a great deal of praise for the light they have thrown on their countries, special mention must be made of Cantón, in Argentina, and Flores, in Mexico, and their voluminous treatises; of the unfortunately incomplete works of Lautaro Ferrer, in Chile, and Schiaffino, in Uruguay; and of the more partial studies of such men as Túmburus, in Argentina; Abecia, in Bolivia; Barboza, Da Fonseca, Nascimento, and Freitas, in Brazil; Finlay and LeRoy, in Cuba; Moore, in Chile; Heinert, Lasso Meneses, Arcos, Chávez Franco, in Ecuador; Asturias and Ortega, in Guatemala; Valdizán, Paz Soldán, and Delgado, in Peru; the learned León, in Mexico; Parsons, in Haiti; and Marcano, Razetti, Rodríguez Rivero, and Sanabria Bruzual, in Venezuela. Their scholarly works constitute the source to which all interested in this subject must always gratefully turn for guidance in a troublesome, if most attractive, field.

Congresses.—Congresses, through the exchange of views and teaching by leaders, have always furnished a needed stimulus to research. Strangely enough, in Latin America international meetings appear to have preceded national medical assemblies, sanitary conferences being among the very first of the former. Uruguay deserves credit for having called an International Sanitary Congress, held at Montevideo in 1873.[52] This, the first of all American sanitary conferences, was followed by those at Washington in 1881, Rio in 1887, Lima in 1888, and, eventually, by the Pan American Sanitary Conferences inaugurated in 1902. The 1881 Washington Conference, while international and not purely American, stands out from the standpoint of research because of Finlay's appearance there.[53]

Academies.—The earliest of Latin American medical academies were undoubtedly those existing in Mexico, under various names, in 1732–1734; 1775–1817; 1824–1827; 1830–1833, and 1836–1842, even before the Academy of Medicine of Paris was created in 1820 (to replace the extinct Society of Medicine and Academy of Surgery). In Buenos Aires, Gorman planned to organize an Academy in 1783,

[52] Argentina and Brazil, as well as Uruguay, sent representatives who approved the draft of an international sanitary convention, the first of its kind in America.

[53] The Washington Conference also recommended, for the first time, the creation of two bureaus, one at Habana, for the international reporting of sanitary conditions. Space does not permit the insertion here of a complete list of the many Pan American and Latin American congresses of medical nature held since then.

but nothing came of it until 1822, and then it lasted only until 1824. In Rio, a Scientific Academy, including medicine in its scope, lasted from 1771 to 1779. The Montevideo Medical Society was organized in 1850; in the United States, the first medical society was organized in 1735; the New York Academy of Medicine in 1847.

The present academies were founded as follows: Rio de Janeiro, 1829; Habana, 1861; Mexico, 1864; Buenos Aires, 1874, after previous attempts in 1852 and 1856; Lima, 1876; Bogota, 1890 (succeeding the Sociedad de Medicina y Ciencias Naturales, organized in 1873); Caracas, 1904.

Medical journals.—The publication of medical journals in America began with the *Mercurio Volante* (1772–73), edited by Bartolache, in Mexico. Articles on medicine had long before appeared in such lay journals as the *Gaceta de México* (1722–1742), and, later, *El Mercurio* (1740–1742), *Gaceta de México* (1784–1789), and *Diario de México* (1805–1812). Another journal, *Higía*, was published in Mexico City, in 1833, by Leger and Villette. A periodical was published by the National Academy of Medicine (1836–1843). Of present medical journals the oldest is the *Gaceta Médica de México*, also founded by the Academy, in 1864. In other countries medical journals represented a much later development. In Brazil the *Patriota* carried medical papers as early as 1813–1817, *Folha Medicinal* appeared at Maranhão in 1822, while the public-spirited Sigaud published the *Propagador das Sciencias Medicas* from 1827 to 1831, and, at his suggestion, the Medical Academy of Rio issued a *Semanario de Saude Publica* from 1830 to 1833, reissued under the name *Revista Medica Fluminense* from 1835 to 1861; *Revista Medica Brasileira*, 1841–1843; *Annaes de Medicina Brasiliense*, 1845–1849; *Annaes Brasilienses de Medicina*, 1849–1885; *Annaes da Academia Imperial* (*Nacional*, later) *de Medicina do Rio de Janeiro*, from 1885 onward. The present *Gaceta Medica da Bahia* dates from 1866. In Cuba the *Repertorio Médico Habanero* appeared in 1840 and the present *Crónica Médico-Quirúrgica* in 1875; in Chile the *Criticón Médico* in 1840 and the present *Revista Médica de Chile* in 1872; in Colombia, *La Gaceta* in 1852, *La Gaceta Médica de Colombia* in 1865–1868, *Revista Médica de Bogotá* in 1873, and the present *Repertorio de Medicina y Cirugía* from 1909; in Argentina, the *Anales de la Academia Nacional de Medicina* in 1823,[54] the *Revista de Farmacia* in 1855, the *Revista Médico-Quirúrgica* in 1888, *Anales del Departamento Nacional de Higiene* from 1892, and the present *Revista Farmacéutica* in 1860, *Anales del Círculo Médico Argentino* in 1877, and *Semana Médica* in 1894; in Venezuela, *Vargasia* in 1868 and the present *Gaceta Médica de Caracas* from 1893; in Puerto Rico, *Eco Médico Farmacéutico* in 1881 and the present *Boletín de la*

[54] Two of the papers in the first issue deal with the two recently isolated alkaloids of cinchona and on the use of iodine in bronchocele and scrofula.

Asociación Médica de Puerto Rico from 1912; in Guatemala, the *Gaceta de los Hospitales* in 1884 and *Gaceta Médica Quezalteca* in 1891;[55] in Peru, *Gaceta Médica de Lima* in 1857; and the present *Crónica Médica* since 1884 (Unanue had written in the *Mercurio Peruano* since 1791, but mostly on nonmedical subjects); in Uruguay, the *Revista Médica del Uruguay* in 1898 and the present *Anales de la Facultad de Medicina de Montevideo* since 1916; (in the United States, the first medical journal dates from 1790, although medical papers had been published in lay journals before); in Costa Rica, *Gaceta Médica de Costa Rica* in 1896; in Santo Domingo, *Revista Médica* in 1905 (ceased publication in 1907); in Nicaragua, *Gaceta Médica de Nicaragua* in 1918; in El Salvador, *La Unión Médica* in 1903 (ceased); in Honduras, *Revista Médico Quirúrgica* from 1919 to 1921; in Haiti, *La Lanterne Médicale* in 1899 and the present *Journal Médical Haïtien* in 1920.[56]

Pasteur Institutes.—Priority for the first Pasteur Institute in Latin America seems in doubt between those founded in Buenos Aires by Doctor Dawel and in Montevideo by Suvilla Guaz, both in 1886.[57] Santos Fernández soon (1887) followed their example in Habana, and shortly afterwards institutes were started in Mexico and Rio (1888), Caracas and Chile (1896), Recife (1899), and Montevideo (1908).

Bacteriological Institutes.—The first hygienic laboratory in Latin America was, in all probability, the one organized at Rio in 1883.[58] Buenos Aires and Montevideo again tie for honors, as both have had bacteriological institutes since 1886 (founded by Ramos Mejía and the great botanist, Arechavaleta, respectively), and Habana comes immediately afterwards, in 1887.[59] Chile followed in 1892, Mexico and Montevideo in 1895, Sucre in 1896, and Brazil with Maguinhos (actually opened in 1900) and Butantan in 1899. In other places laboratories were created as follows: Asuncion and San Juan,[60] in 1900; Habana, 1902; San José and Lima,[61] 1903; Haiti (Audain's), 1905; Santo Domingo, 1908; Guayaquil and Caracas,[62] 1910; La

[55] *La Gazeta* had published articles by Esparragosa in the XVIIIth century.

[56] Medical journals in Latin America now number close to 200.

[57] The New York Pasteur Institute was only opened in 1890.

[58] In the United States the first municipal laboratory was organized in 1888, in Providence; the first real public health laboratory in New York, by Biggs in 1892. Private laboratories had, of course, existed before these dates, both in the United States and Latin America. In Brazil, Lacerda (who worked at first with Couty, a French professor of biology) and Marques de Araujo Góes introduced bacteriology.

[59] This was a laboratory organized by Santos Fernández under Tamayo's direction.

[60] In Puerto Rico a chemical laboratory had been organized in 1841. The first microscope was brought to the island in 1890. Ashford established, in 1899, at Ponce a small laboratory where he conducted his momentous investigations of hookworm disease. The first official public health laboratory on the island dates from 1909.

[61] The municipal laboratory had been created at an earlier date. Flórez had started bacteriological courses at the medical school previously to 1890.

[62] In Caracas a chair of bacteriology was created in 1891, probably the first on the Western Continent, the same year the Vargas Hospital was opened under J. G. Hernández. The Vargas Hospital laboratory, where Rangel worked, was, of course, older.

Paz, 1914; Nicaragua, 1915; El Salvador, 1916; Honduras (with Rockefeller's aid) and Bogota,[63] 1923; Guatemala, 1928.[64] At Montevideo there has been an Institute of Experimental Hygiene since 1896, first directed by Sanarelli, and combined with the Municipal Bacteriological Laboratory from 1897 to 1905. Physiological laboratories had been in existence in Buenos Aires since 1884 and in Montevideo since 1891. In Mexico a National Medical Institute for the study of medical conditions and medicinal plants and animal substances was founded in 1888 and definitely organized in 1890. Lavista, the noted

THE BACTERIOLOGICAL INSTITUTE AT BUENOS AIRES

Organized in 1886, this institute now ranks second to none in the world.

surgeon, created in 1896 in Mexico a Museum of Pathology, which developed into a Pathological Institute in 1901, and, under the supervision first of Carmona y Valle and then of Toussaint, studied the pathology and bacteriology of typhus fever. A bacteriological laboratory was provided by the sanitary code of 1891. From these humble beginnings to the present up-to-date institutes the road proved shorter than it may seem at first sight.

The present national bacteriological institute of Buenos Aires, with its many divisions and well-trained personnel, has a notable history,

[63] Under Reyes' administration (1905-1908) there had already been organized a laboratory for the diagnosis of leprosy. The true founder of bacteriology in Colombia was the veterinarian, Lleras Acosta, who, in 1907, began the manufacture of anthrax vaccine.

[64] A national vaccine institute had existed at El Salvador and also at Guatemala since 1907.

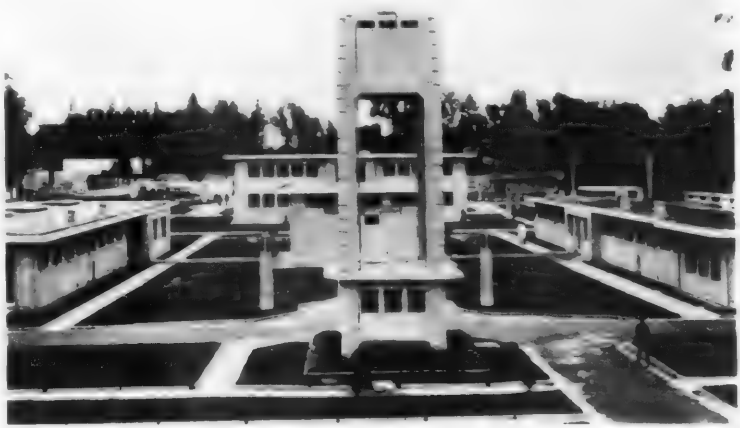
owing its inception and development to such sanitarians as Malbrán and Penna. It is at present headed by an excellent bacteriologist, Dr. A. F. Sordelli, after whom a germ has been named. His predecessor, Prof. R. Kraus, has the unusual distinction of having served effectively in a similar capacity three Latin American Republics: Argentina, Brazil, and Chile. Another Buenos Aires institution doing high-class work is the Cancer Institute, directed since its beginning (1922) by the internationally known cancerologist, Prof. Angel Roffo, whose name is borne by one of the most used tests for tumors.

The Instituto Médico Sucre in Bolivia was created in 1896 by a group of high-minded physicians to commemorate the centennial of the Bayard of South American independence. The National Institute of Bacteriology at La Paz was created in 1911. This laboratory has performed valuable work both in diagnosis and in manufacture of biological products. Its first director, Morales Villazón, has prepared important contributions on local diseases and contributed to the refutation of the theory that llamas suffered from syphilis. The present director is Dr. F. Veintemilla.

The Oswaldo Cruz Institute originated in 1899 and was turned over to the Federal Government in 1900, at first with the idea of manufacturing antiplague serum. Its continued development, first under Oswaldo Cruz (1872–1917) and then under Cruz's faithful and brilliant collaborator, Chagas, has made it not only an establishment for the preparation of all common vaccines and serums, but also a research and teaching center for the study of diseases of men and animals. In addition to developing native investigators, it has attracted outstanding foreigners, such as von Prowazek and Lutz. The Institute is located near Rio in an old plantation called Manguinhos, and thence its old name, changed into its present one (1909) after the famous campaign which, under Cruz's direction, banished yellow fever from Rio. The buildings include various pavilions: Laboratory, stables, bleeding room, aquariums, breeding rooms for animals. A cancer institute, donated by the Gaffrée-Guinle Institute, will soon be added. Branches of the Institute have been organized in important Brazilian cities. The Butantan Institute at Sao Paulo, founded by Ribas to manufacture antiplague serum in 1899, under Vital Brazil soon developed into a model laboratory, one of the earliest and largest, for the production of anti-snake-venom serum, with a world-wide reputation. This important work has been continued and extended under the present director, Doctor Amaral, and capable assistants, including Veillard, Assis, Assumpção, and Gomes. At the Instituto de Hygiene de Sao Paulo, housed in new buildings provided by the Rockefeller Foundation and headed by a proved investigator, Paula Souza, good work has been done, among others by Borges Vieira, Fleury de Silveira, and Pessoa on communicable diseases.

Cádiz was the true founder of microbiology in Chile, and under him the newly created laboratory was the first (1898) in South America to manufacture biological products. The present bacteriological research institute in Chile developed comparatively late. Its growth in inauspicious times, under the wise direction of its late chief, Doctor Kraus, is a pleasant omen, and valuable original papers have already been published in its journal.

The National Institute of Hygiene at Bogota, founded by Samper Martínez, enjoys a well-deserved name, and was to develop further under the direction of Peña Chavarría, who has made important



THE MEXICAN INSTITUTE OF HYGIENE

This group of buildings in the outskirts of Mexico City was erected about five years ago to provide adequate quarters for the institute's varied activities.

studies on diphtheria, typhoid, yellow fever, and tropical diseases as a whole.

The present Mexican Institute of Hygiene had its origin in 1921, when Gaviño Iglesias divorced the bacteriological section (created in 1895) from the Pathological Institute. Its new buildings, started in 1925, were finished in 1927 with the contributions of the employees of the National Department of Health. The Institute has divisions of biological products, chemistry, pathology, physiology, parasitology, veterinary science, a serpentarium, museum of bacteriology, etc. In addition, scientific work of a very technical nature is performed. Its present director is a noted laboratory man, Dr. Eliseo Ramírez, and among its personnel are prominent scientists. The Biological Insti-

tute, headed by Ochoterena, has achieved important studies on onchocerciasis, vitamins, scorpions, intestinal worms.

A Frenchman, at least by adoption, Elmassian, was engaged in 1900 to found and organize the National Institute of Parasitology in Asuncion. He is the father of the modern bacteriological school of Paraguay. His successor was Doctor Migone. The present director is Doctor Urízar, who has done meritorious work on *mal de caderas*.

It may be well to insert here a bird's eye view of some signal achievements:

In Argentina, early in the nineteenth century, Muñiz, who delved into so many things, studied anthrax.[65] His name, equally with those of other pioneers, including Argerich, Rawson, Penna, Piñero, Durand, and Pardo, is justly perpetuated in present hospitals, as are in Montevideo those of Vilardebó,[66] Pereira Rosell, etc. Ayerza gave his name to a heart disease on which his followers, Arrillaga and Escudero, shed further light. The very wealth of Argentine medicine prevents its receiving here the meed of attention it so richly deserves.

In Brazil the scientific study of tropical medicine was initiated at Bahia by the triumvirate of Wucherer, Paterson, and Silva Lima (first to describe ainhum in 1867). Couto's [67] strong personality has radiated its influence to many fields. During his connection with the Oswaldo Cruz Institute, Neiva studied blood-sucking insects, demonstrated the independence of Vianna's *Leishmania brasiliensis*, identified Chagas' disease with the uta of the pre-Columbian Peruvian *huacos*, and pointed out its possible transmission by sand flies. Neiva also made a name for himself as a public health pioneer while State director of health at Sao Paulo, where he began the hookworm campaign, started the construction of a modern leprosarium, prepared a sanitary code, and later organized the remarkable Biological Institute devoted to the study of diseases of animals and plants, the Oswaldo Cruz Garden at Butantan for growing medicinal plants, including chenopodium, and the Official Drug Laboratory. The accomplishments of the Brazilian school must include Aragão's and Vianna's growing of Donovan's bodies in venereal granuloma and naming them, as well as finding a successful treatment for the condition; the introduction by Vianna of antimony tartrate injections in kala-azar; and the founding of the model institute of tropical medicine at Sao Paulo. Another Brazilian, Botelho, introduced one of the

[65] In Argentina there are references to anthrax as far back as 1590 and 1609. A commission to study the disease was appointed in 1884. Wernicke was the first to isolate and grow the bacillus in South America. Preventive vaccination was introduced in 1887.

[66] Vilardebó, a Frenchman, in addition to medicine, also delved in anthropology and died combating a yellow-fever epidemic. His countryman, Moussy, the founder of the meteorological observatory, left monographs on geography and history.

[67] Couto has been reelected year afte 1year to the presidency of the National Academy of Medicine, and only recently was exempted from superannuation as a professor in the medical school.

most used tests for cancer in the Pasteur Institute at Paris. Fontes' far-reaching work on the filtrability of the tubercle bacillus as far back as 1909 has caused him to be lately urged for a Nobel prize. Along similar lines Monckeberg has demonstrated in Chile the transmittal of tuberculosis from the mother to the fetus.

Even in colonial times Guatemala had exceptional figures. Flores, in the eighteenth century, taking all science as his province, wrote the first medical book published in Central America, designed a passenger balloon, built wax models to teach internal medicine and physiology, urged inoculation against smallpox, devised a new type of glasses, pioneered in animal electricity, traveled to and lectured in Europe, where his remedy for leprosy and cancer of the skin was tried, and corresponded with scientists abroad. Esparragosa, his best pupil, invented a forceps, first operated for cataracts (1797) in his country, introduced smallpox virus in 1804, and wrote no fewer than 60 books, all lost. Luna, about the middle of the century, introduced ether and lithotripsy.

OSWALDO GONÇALVES CRUZ

Cruz was a hero of peace who eradicated yellow fever in Rio de Janeiro and gave new impulse in Brazil to public health work.

In Cuba Santos Fernández devoted his long and useful life to journalism and ophthalmological and public health progress. Finlay left behind a school which brought new laurels to his country, as perhaps best exemplified by Guiteras[6] and Lebredo. The noble hearted Tamayo introduced bacteriology and presided over the clinical study society which fathered the medical congresses. Albarrán and his pupil Lluria in Paris proved international pioneers in urology. The recently created Finlay and cancer institutes have strengthened research facilities.

After an auspicious beginning in colonial times, dark days followed in Haiti, and research, as well as medicine, got a new start in that

[6] Guiteras published for six years (beginning in 1900) the first journal of tropical medicine in the New World, and the second in the world.

Republic with Dehoux and Audain only in the second half of the XIXth century. Audain, who died in 1930, proved indefatigable in his efforts to stimulate medical progress in his native island. It was he who founded the first of modern Haitian medical journals, *La Lanterne Médicale* (1899–1911), organized the first bacteriological and parasitological laboratory in 1905, collected and identified mosquitoes, and recognized in 1906 the presence of beriberi. Next to the contributions of such Americans as Butler, Wilson and Mathis (yaws), Mann and Wickersham (edema), we must place those of Choisser on causes of death. The laboratories created under American auspices in 1919, and the reorganization of the Port au Prince medical school with the aid of the Rockefeller Foundation in 1926, augur well for the progress of research in the West Indies.

In Mexico, Carpio, an artist as well as an encyclopedist and a philanthropist, used his pen effectively to ridicule medical follies;[69] Olvera about 1846 anticipated some of Crile's work on the electron theory of life; Liceaga devoted himself unselfishly to reorganizing and almost starting the medical school; the great clinician Jiménez (1813–1876) popularized and even improved percussion and auscultation, in 1845 differentiated typhoid fever and tabardillo, and in 1856 introduced thoracic puncture for liver abscesses. Gama, of San Luis Potosi, was a pioneer in performing surgical drainage before the French Chassaignac; Vértiz improved the method and introduced Lister's antisepsis, while Lobato in 1867 stumbled accidently on asepsis and used it during the last days of the war against Maximilian. Montes de Oca devised a number of novel operative procedures, and his method for amputation of the leg is still followed. Lucio in 1852 divided leprosy into three forms, one of which he described before European writers.[70] Lavista boldly introduced new operations such as ovariotomy, and Toussaint was a pioneer in gall-bladder surgery and clinical advance. Carmona y Valle in 1880 defined the symptoms of stenosis of the tricuspid valve, and, a pioneer bacteriologist, was among the first to describe a germ (*Peronospora litea*) in yellow fever, and practically initiated ophthalmology.[71] In 1884 the Department of Fomento made a national survey of climatic conditions and geo-

[69] Carpio, whose name appears in all Mexican anthologies, only began to write poetry when over 40 years old.

[70] Cortés is supposed to have built a hospital for lepers as early as 1540. The first authentic leprosy institute in Mexico dates, however, from 1582.

[71] The first ophthalmoscope had been brought to the country by Iglesias in 1856. Carron du Villards, a French surgeon from Piedmont, was the true introducer of ophthalmology in Mexico as well as in most of Latin America. Carron du Villards, one of the most dashing characters in medical history, always professed the greatest devotion to Bolívar, who had once engaged him to head the medical corps in his army and serve afterwards as professor of operative surgery at Bogota. While at Caracas, Carron du Villards, who styled himself General, not only operated successfully for cataract and squint, but removed a patient's tongue for cancer, performed lithotomies, lithotripsy, herniotomies. He also introduced chloroform narcosis in Venezuela, but suffered the mis-fortune of having one of his patients die suddenly as a result of the anesthesia.

graphic distribution of plants, and the data were placed in 1888 for analysis in the hands of Orvañano, who published the result in 1889. Iglesias tried in vain in 1868 to introduce animal smallpox vaccine, but his nephew, Gaviño Iglesias,[72] succeeded in this enterprise in 1918. Terrés gave much impulse to medical research with the organization of the Society of Internal Medicine (1895–1911) and its organ, the *Revista de Medicina Interna*, to discuss original observations. Herrera's [73] and Vergara López' ambitious work (in French) on life in high plateaus was awarded in 1895 the Hodgkins prize by the Smithsonian Institution.

Revered names in the medical annals of Peru are those of Bambarén, who studied the physiology of the cardiac valves; Alpaca, who invented a forceps preceding that of Tarnier; and Valdivia, who insisted on the humanitarian care of the insane. During the early part of the nineteenth century, Bravo was the first to describe scientifically verruga peruana. When the pathogenicity of some *Ciliata* parasites was still under discussion in Europe, Escomel in 1904 had already determined the point at Arequipa. Escomel was in all justice made the subject of an international homage in 1927.

In colonial times the most prominent scientist in Puerto Rico was Stahl, who wrote on Indian medicine, West Indian plants, fecundity, performed the first ovariectomy in the island (1890), and organized a museum of natural history. Puerto Rico's geographical and political position has permitted it to fill a special rôle in fusing Saxon and Latin methods and applying them to the solution of tropical problems. The epoch-making studies of hookworm disease were carried out under such auspices. The former Institute and the present School of Tropical Medicine of San Juan have perpetuated this system with fruitful results.

Soca, the glory of the Uruguayan school, an authority on ataxia, heart disease, and pediatrics, also won fame in public life, oratory, and medical teaching, being the first South American to be made an associate member of the Paris Academy of Medicine.[74] Ricaldoni, in neurology, and Morquio, in pediatrics, represent other summits of Uruguayan medicine.

In Venezuela, Beauperthuy must really be considered among the first physicians, if not the very first, to refer to parasites in connection with the cause of specific diseases. The great naturalist Ernst

[72] Gaviño Iglesias was the man who, by separating the bacteriological division from the Pathological Institute, created the present flourishing Institute of Hygiene in Mexico.

[73] Herrera, who later became the head of the biological institute, introduced the new nomenclature for plants and animals, and has also gained distinction by his pharmacopœial work and researches into phasmogeny.

[74] Soca used to say that when his patients should miss his visits it would be because he would be lying in his grave. He lived up to this motto, attending to his practice and classes until the day before his death. Conscious to the end, from his sick bed he kept on calling out each symptom as it developed and directing his treatment.

(1832–1899) published (1877–1884) a series of valuable papers on Venezuelan fauna and flora. In 1883 Toribio González reported amebic dysentery for the first time in the New World. Modern scientific medicine saw its beginnings under the brilliant Razetti, whose *Gaceta Médica de Caracas* gave new impulse to the revival. Rísquez in 1893 described a rapid method for the diagnosis of malaria, searching the black pigment in the blood. Mosquera, first to report undulant fever in Venezuela, with Rísquez, in 1895, pointed out the presence in Caracas of fevers which did not quite conform to the classic typhoid picture, thus assuming priority in the discovery of

NATIONAL INSTITUTE OF HYGIENE, SANTIAGO, CHILE

To this laboratory is due the honor of initiating the preparation of biological products in South America

paratyphoid infections. Dominicci became the true father of bacteriology in the nineties, when he organized one of the first Pasteur Institutes in all America.

No longer does the witticism of a French physician hold true to the effect that Latin Americans excel in consumption but lag in production. Pages could be used to enumerate that formidable legion of surgeons,[75] clinicians, specialists, and bacteriologists who have placed so high the name of their respective countries.

[75] No less an authority than Dr. W. J. Mayo has emphatically stated that Argentine surgeons compare favorably with those of any other country in the world. "Do you mean to say that all the surgeons of South America are of this high grade?" "I can only answer that all the work I saw was high grade, but I saw only the best men, and not, by any means, all the best men."

Pan American cooperation.—A remarkable feature of medical research in America has been, especially of late, its decidedly Pan American character in many instances. Proof is thus brought once more of the only too well recognized fact that science takes no account of frontiers. Vargas practiced in Puerto Rico: Esparragosa, of Guatemala, and Herrera Vegas, of Argentina, were born in Venezuela: Fermín Ferreira, of Uruguay, and Bambarén of Ecuador, in Peru; Guiteras and González Echeverría[76] spent a large part of their lives in the United States; Peña Chavarría has headed laboratories both in Costa Rica and Colombia. In the yellow fever epoch-making achievement, Cuba, as well as the United States, Brazil, and other countries, participated. Hookworm disease is a similar case to the point, and just as much may be said regarding mycoses, American leishmaniasis, verruga peruana, snake-poisoning control, etc. The altruistic activities of the Rockefeller Foundation have made available to the other countries the lessons learned elsewhere and given new impetus to scientific medicine and the establishment of laboratories. The medical work of the United Fruit Co., embracing several tropical countries, has also served a like purpose, and the conference on tropical problems held under its auspices in 1924 constituted a real scientific and Pan American achievement. The remarkable studies of diphtheria at Rio in 1927 by Doull, Ferreira, and Parreiras, and Ruiz Castañeda's and Zinsser's on typhus fever offer recent instances of this medical Pan Americanism.[77] Neiva, of the Oswaldo Cruz Institute, is another shining example, as he organized the medical zoology and parasitology section of the Buenos Aires Bacteriological Institute, and while in Argentina discovered the presence of Chagas' disease and typhus fever. The Spanish edition of the *Journal of the American Medical Association* and the *Boletín de la Oficina Sanitaria Panamericana* have also contributed effectively to the same cause. The Pan American Sanitary Bureau has helped in addition through the conferences organized under its auspices and recently through the studies of plague on the Pacific coast of South America.

A good example of this Pan American spirit is the Gorgas Memorial Institute, formally opened at Panama in 1929 to investigate tropical diseases. The present buildings of the Institute were donated by the Republic of Panama, and the United States contributes annually to the support of this enterprise. The other American Republics have also been invited to join in honoring the memory of the great sanitarian who, after freeing both Habana and Panama from yellow

[76] González Echeverría was director of a State insane asylum in New York and professor of mental diseases in New York University.

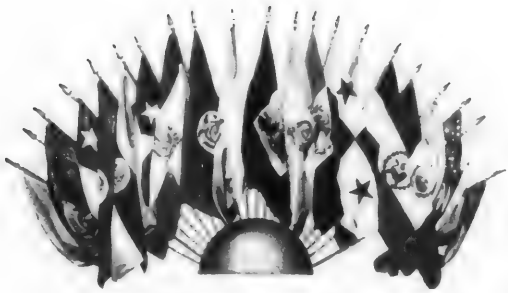
[77] This internationalization has been generously extended to European investigators, as shown by the invitations to Kraus; in Brazil, to Wucherer, Prowazek, Lutz; in Argentina, to Nocard, Lignieres, del Río Hortega; in Uruguay, to Sanarelli; in Guatemala, to Raynal; in Cuba, to Hoffmann; in Mexico, to Hoffmann and Dampf.

fever, set the total eradication of the disease as a goal for the civilized world. Under its present director, Dr. H. C. Clark, the Institute has done already, pending definite organization, fine work on malaria, and has to its credit the discovery in 1930 of the first cases of Chagas' disease above Venezuela and Colombia. The International American Institute for the Protection of Childhood of Montevideo constitutes another instance to the point.

It is a most regrettable but unavoidable penalty befalling any brief sketch, such as the present, that important names must be omitted and deserving deeds passed over.[78] Let all those thus perforce but most reluctantly neglected recall Goethe's pregnant phrase that only mankind combined is the true man and that the individual can only be joyous and happy when he has the courage to feel himself the whole. In focusing the beams from so many scattered constellations, even most luminous stars may find their radiance crowded out. The homage here given the few is really intended for all. Let then these lines be considered a tribute not to certain persons or specified accomplishments but to that great body of noble men who in the remotest corners of Latin America, from Columbus' day to ours, under all kinds of difficulties and trials, regardless of the cost to themselves, with no hope of glory or idea of profit,[79] have devoted their every day and best effort to helping their fellow creatures, to relieving suffering, to making life happier and healthier, facing sickness and death in their holy calling. To them the highest honor, to them all fealty and reverence!

[78] Flores' two volumes on Mexican and Canton's six on Argentine medicine bear witness to the magnitude of the field.

[79] De-Simoni, the first secretary of the Rio Academy of Medicine, in reviewing the founders of the Academy, referred to their leaving their families penniless. Similar statements close even now the biographies of prominent Latin American physicians.



PAN AMERICAN UNION NOTES

THE GOVERNING BOARD

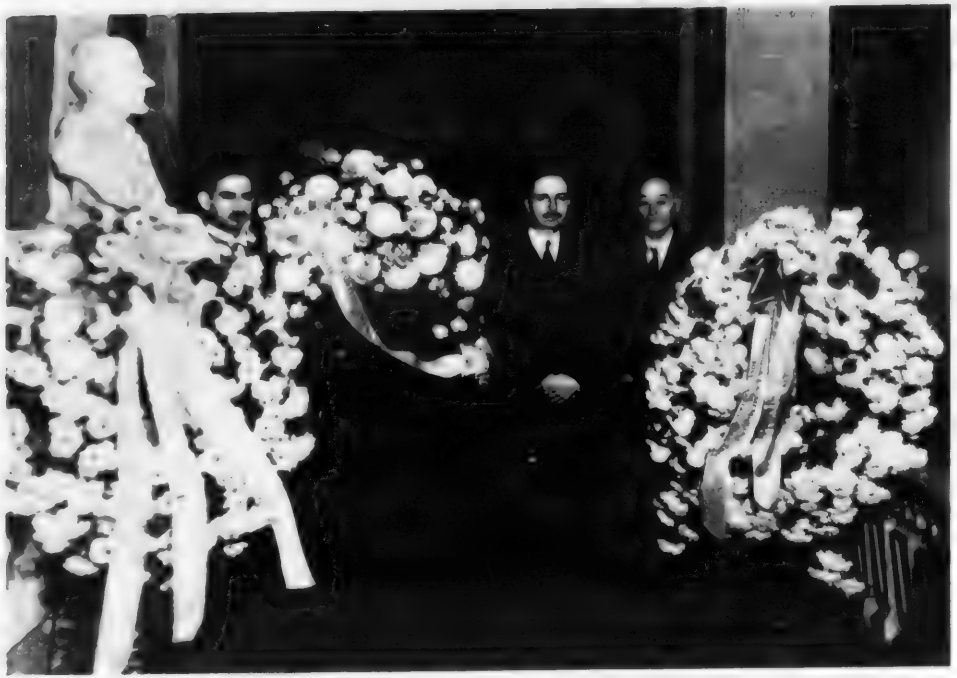
New members.—The Governing Board held its first meeting of the year 1932–33 on November 2 last, His Excellency the Minister of Uruguay, Dr. Jacobo Varela, vice chairman, opening the session in the absence of the chairman, Hon. Henry L. Stimson, Secretary of State. The vice chairman welcomed two new members of the Board: His Excellency the Minister of Bolivia, Dr. Enrique Finot, and the Chargé d'Affaires of Costa Rica, Señor Manuel González Zeledón.

Election of officers.—The Hon. Henry L. Stimson was reelected chairman of the Board, and His Excellency the Minister of Guatemala, Dr. Adrián Recinos, was chosen vice chairman. A vote of thanks was given the retiring vice chairman for his efficient service.

Member of Pan American Railway Committee.—Señor Jorge Triana, a distinguished Colombian engineer, was elected a member of the Pan American Railway Committee. The other members of this committee are: Señores Juan Briano, of Argentina, Chairman; Santiago Marín Vicuña, of Chile; Estanisláo Bousquet, of Brazil; Manuel D. Almenara of Peru; and Verne L. Havens, of the United States.

Tribute to José Matías Delgado.—The vice chairman of the Board, Doctor Recinos, offered a resolution in honor of the Salvadorean patriot Delgado in the following words:

> It has been a laudable custom on the part of the Governing Board of the Pan American Union to pay homage to the great names of the New World on those occasions marked in history as of special importance. The 12th of the present month of November will be the centenary of the death of Dr. José Matías Delgado, the most illustrious precursor of the independence of the Provinces of Central America. Born in San Salvador, and educated at the Colegio Tridentino in Guatemala, Father Delgado, by reason of his abilities and his patriotic fervor, was called upon to play a decisive rôle in the first movements which manifested the desire of the people of Central America to obtain their independence, as



OBSERVANCE OF CENTENARY OF DEATH OF DELGADO

The Hall of Heroes of the Pan American Union was the scene of an interesting ceremony November 12, 1932, the hundredth anniversary of the death of José Matías Delgado, the Salvadorean patriot and leader of Central American Independence, when homage was offered by the Pan American Union and the recently formed Association for Honoring the Liberators of the Nations of America. Following brief addresses delivered by the Minister of Guatemala, Dr. Adrián Recinos, who is vice chairman of the Governing Board of the Pan American Union, by Dr. James Brown Scott, president of the association mentioned, and by Dr. Roberto D. Meléndez, special representative of El Salvador on the Governing Board, floral tributes were placed at the bust of Delgado. In the group appear, reading from the left: Doctor Meléndez, Doctor Recinos, and Doctor Scott.

well as in the subsequent activity which culminated in the emancipation of the Provinces, proclaimed on September 15, 1821. After the declaration of independence, Delgado labored to consolidate the results thereof and to prepare the country for republican life. He presided over the first congress of the new-born federation, and to the day of his death dedicated his talents and unceasing efforts to the development and progress of the Central American nation.

History has consecrated the name of Delgado and has graved it in the Hall of the Liberators of America. His native country, El Salvador, with justice looks upon him as the most eminent of her sons, the man who best exemplifies the civic virtues of his country, and for this reason has placed his bust in the Hall of Heroes of the Pan American Union. Within a few days, on the centenary of his death, the Salvadorean people will again pay homage to this Central American leader.

I therefore have the honor of proposing to the Governing Board of this institution that it pass a resolution to join in the homage which will be rendered to the memory of Doctor Delgado. For this purpose I submit the following to the consideration of the members of the Board:

Whereas, November 12, 1932, will mark the centenary of the death of the illustrious patriot and statesman Dr. José Matías Delgado, native of San Salvador, who led the movement for the independence of Central America; and

Whereas, Doctor Delgado devoted his life and his extraordinary talents to the cause of liberty and of republican ideals, and because of his eminent services and civic virtues merits the admiration, the gratitude, and the veneration of posterity,

The Governing Board of the Pan American Union

Resolves: To hold in remembrance the illustrious Central American leader, Dr. José Matías Delgado, and to join in the tribute which the Republic of El Salvador will pay to his memory on the centenary of his death.

The Special Representative of El Salvador on the Governing Board, Señor Roberto D. Meléndez, responded gracefully to this tribute, unanimously passed by the Board.

COLUMBUS MEMORIAL LIBRARY

Constitutions of Haiti and Paraguay.—The library has recently received copies of the constitutions now in force in Haiti and Paraguay, which will be distributed free of charge, upon application, as long as the supply lasts.

National Library of Ecuador.—The annual statement of the Director of the National Library at Quito, Ecuador, published in the *Informe del Ministro de Educación Pública* has been received in the library. The work of the library was somewhat restricted during the past year, but progress was reported in its general condition. For books for the libraries of the Central University, the Universities of Guayaquil and Cuenca, and the high schools of the country the sum of 12,501 sucres was appropriated.

Accessions.—Among the 181 publications added to the library during the past month the following are especially noted:

Recopilación de decretos-leyes dictados por el gobierno socialista de la República de Chile (por orden numérico). tomo 1. Santiago, Talleres de San Vicente,

1932. Recopilados y concordados por Hernán Carrasco Silva, abogado; Osvaldo Ceppi Ceppi, Carlos Pulgar Fabres y Fernando Enrique Pérez, estudiantes de derecho.

Historia social de Chile, [por] Domingo Amunátegui Solar. Santiago, Editorial Nascimento, 1932. 345 p.

Floralia montium, [por] Alvaro A. da Silveira. Bello Horizonte, Imprensa official de Minas Geraes, 1931. v. 2. Notas botanicas, geologicas e geographicas.

Un orientalista cubano: Francisco Mateo de Acosta y Zenea, discurso escrito por el académico de número Dr. Juan M. Dihigo y Mestre para la sesión solemne que debió celebrarse el 10 de octubre de 1932 [en la Academia de la historia de Cuba]. La Habana, Imprenta "El Siglo XX," 1932. 113 p. front. (port.) ports., facsims.

La vida de la Academia de la historia (1931–32), memoria leída por el secretario Sr. René Lufríu y Alonso. Informes . . . y concurso a premio del año de 1932. La Habana, Imprenta "El Siglo XX," 1932. 1 p. l., 61 p.

Geografía general de Costa Rica, por M. Obregón L. . . . tomo I, Geografía física. San José, Imp. Lines, A. Reyes, 1932. 339 p. illus., fold. maps, diagr. (Lecturas geográficas, 3ª. serie.)

A través de Chile; guía del viajero, publicación oficial de los Ferrocarriles del Estado. Domingo Oyarzun Moreno, editor autorizado. [Santiago, Imp. Universitaria] 1931. 293 [2] p., incl. illus., maps, tables. fold. tables.

Escritores de Chile. II. Siglo XIX. Selección y notas de E. Solar Correa. Santiago de Chile, Imprenta Universitaria [1932], 244 p. 19½ cm.

"*Jai-von*" (novela chilena) por David Rojas González. Valparaíso, Ediciones "Sud-América," 1932. 186 p.

A tentative bibliography of Peruvian literature, by Sturgis E. Leavitt. Cambridge, Massachusetts, Harvard University press, 1932. 5 p. l., 37 p.

The Harkness collection in the Library of Congress; calendar of Spanish manuscripts concerning Peru, 1531–1651. Washington, U. S. Govt. print. off., 1932. x, 336 p.

Periodicals received for the first time by the library were as follows:

Boletín de la Biblioteca Nacional. San Salvador, Imprenta Nacional, 1932. 2d series, no. 4, September, 1932. 38 p. illus. 10 x 7¼ inches. Director: Julio César Escobar; editor: José Gómez Campos.

Revista del Instituto Nacional "General Francisco Menéndez"; ciencia, arte, literatura, variedades. San Salvador, Imprenta Nacional, 1932. Vol. II, no. 12, June 1, 1932. 67 p. illus. 9¼ x 7 inches. Monthly. Editor: Prof. Dr. Alberto Rivas Bonilla.

Boletín Oficial de la Policía; órgano mensual de la Dirección general del cuerpo. San Salvador, 1932. Vol. 1, no. 1, July, 1932. 34 p. illus. 9¼ x 6½ inches. Monthly.

Boletín del Ministerio de Relaciones Exteriores. Montevideo, Imprenta Militar, 1932. 2d series, vol. 1, 1st year, vol. 1, July, 1932. 124 p. 9½ x 6½ inches. Monthly. Editor: Virgilio Sampognaro. Office: Montevideo, Uruguay, Calle Soriano, 1223. Reappearance, in compliance with Presidential decree of January 29, 1932, of the "Boletín," which had ceased publication in March 23, 1923.

Universidad del Cauca; órgano del movimiento ideológico occidental universitario. Popayán, Cauca, Colombia, Imprenta del Departamento, 1932. Vol. 1, no. 2, September, 1932. 47 p. illus. 9½ x 9½ inches. Monthly. Editor: Antonio García.

Oro; órgano del Ministerio de Fomento para la difusión de la minería aurífera. Santiago de Chile, 1932. No 1, August, 1932. 8 p. illus. 15¼ x 11 inches. Semimonthly. Distributed free. Address: Ministerio de Fomento, Santiago de Chile.

Revista Escolar Panamericana (*Pan-American school review*); revista mensual para fomentar y aumentar el mutuo interés entre los profesores, alumnos, y amigos de las universidades, colegios y escuelas secundarias de las Américas. Atlanta, Georgia, 1932. Vol. 1, no. 1, October, 1932. 8 p. illus. 11½ x 9 inches. Monthly, October to May, inclusive. Editor: O. S. Bandy. Address: Box 111, Station E, Atlanta, Georgia.

Rotary Club de Pacasmayo; síntesis de las labores del Rotary Club de Pacasmayo, 1932. No. 1, July, 1932. 8 p. 11½ x 9 inches. Monthly.

Brasil; agricultura, comercio, comunicaciones, finanzas, industria, turismo. Barcelona, Cámara de comercio, industria y navegación hispano-brasileña en España. 1932. Vol. I, no. 1, July–September, 1932. 24 p. illus. 9½ x 9½ inches. Quarterly. Address: Barcelona, España, Vía Layetana, 28.

América Central Ilustrada. Barcelona, 1932. Vol. 1, no. 3, July, 1932. [27] p. illus. 11½ x 8½ inches. Monthly. Address: Barcelona, España, Rambla de las Flores, 20, pral.

Revista Diplomática Consular. Caracas, Venezuela, 1932. Vol. 1, no. 3, October, 1932. 16 p. illus. 11 x 8 inches. Editor: B. Rosillo. Address: Sociedad a Traposos, no. 4, Caracas, Venezuela.

PAN AMERICAN PROGRESS

FURTHER MEXICAN CURRENCY AND BANKING REFORMS

The series of reforms in the monetary and banking systems of Mexico inaugurated with the passage of the Monetary Law of July, 1931 (amended on March 9, 1932), and continued with the adoption of the Law Reorganizing the Bank of Mexico, on April 12, 1932 (amended on May 19, 1932), was brought to completion by the passage on June 28, 1932, of the General Law of Credit Institutions, and the adoption, on August 26, 1932, of the Law on Negotiable Instruments and Credit Operations.

This series of laws has completely altered the financial structure of the nation. Without discussing in detail the provisions of the Monetary Law and its amendment or the Law Reorganizing the Bank of Mexico (see BULLETIN for June, 1932), it may be pointed out that the monetary system of Mexico has been changed from that of a nominal gold standard to a "managed" system of currency, which while retaining some of the features of both the gold and silver standards, cannot be said to be on either one of these two systems. The Bank of Mexico, by the law of April 12, 1932, has been reorganized to function primarily as a central bank of issue and rediscount, and its operations as a commercial bank for the public have been abandoned. By this law the bank has powers to regulate the monetary circulation, the interest rate and the foreign exchange rate, carry on rediscount operations arising out of legitimate commercial transactions, centralize the banking reserves of the nation, act as a clearing house for its member banks, and be the fiscal agent and sole depositary of the funds of the Federal Government.

The next step in the reform program was the passage of the General Law of Credit Institutions, on June 28, 1932. The principal features of this law are (1) the completion of the process of integrating the entire banking system of the country along the lines set forth in the law reorganizing the Bank of Mexico and the making possible of the operations of credit institutions under the conditions of stability and elasticity demanded by the special necessities of the Republic; and (2) the correction of certain faults and deficiencies in the existing legislation governing credit institutions.

This law sets forth in great detail the regulations governing the organization and functions of all types of credit institutions, including

commercial banks, branches of foreign banks, trust banks, bonded warehouses, stock exchanges, general financial societies, and credit unions. In addition, the law lays down the regulations for the operation of clearing houses and the duties and powers of the National Banking Commission, which is to have the general supervision of the banking situation of the country.

In general, it may be said that the principal purposes of the law were so to reorganize the banking structure of the country as to open the way for banks to invest their funds in a number of different types of credit operations; but in distinction to the old law, each type was to be recognized for what it was, and dealt with accordingly. Thus, rather than attempting to organize the banking system on the basis of separate specialized banking institutious, the law aims to permit specialized functions, and a bank can carry on any or all functions, provided the proper departments are established to segregate them. In addition, the law extends the field of banking operations by defining and regularizing the legal dispositions referring to mortgage bonds and certificates of deposit; by regulating the credit operations of bonded warehouses, stock exchanges, credit unions, etc.; and by affirming the power given to the Bank of Mexico to grant new and diverse types of credit to its associated banks.

One of the most important provisions of the Law of Credit Institutions is that covering trust banks and credit unions. The regulations of the new law aim to provide sources of credit for a large and hitherto unserved portion of the population, forms of credit which, although specified in previous legislation, never reached a stage of practical usefulness. Small tradesmen and merchants, it is believed, will be especially helped by this section of the law.

Supplementing the regulations governing branches of foreign banks contained in the amendments to the Law Reorganizing the Bank of Mexico adopted on May 19, 1932, the General Law of Credit Institutions provides that operations by branches of such banks must be guaranteed by the reserves of the parent bank as well as those of the local institution, and such branches must submit themselves to Mexican laws and to Mexican courts in all business carried on within the Republic.

The provisions amplifying the powers of the National Banking Commission contained in the General Law of Credit Institutions are expected to have a most important effect on the future banking situation in Mexico. The Commission is now charged, among other functions, with the duty of determining the state of solvency of banks and of taking adequate measures to prevent or lessen the consequences of liquidation. Subject to the approval of the Secretary of the Treasury, the Commission will also have the right to decide the amount

of reserves which banks at any time will be required to hold against deposits.

On August 26, 1932, there was passed by the Mexican Congress the Law of Negotiable Instruments and Credit Operations, which was the final step in the general financial reorganization plan mentioned above. This law was primarily designed to provide certain necessary juridical measures which would bring various dispositions of the Commercial Code of Mexico in line with the measures adopted for the reorganization of the credit structure of the nation, and to provide certain necessary legislation which heretofore had not existed in the Commercial Code, in order that the credit instruments set up might be utilized to the greatest advantage.

There are three principal sections to this law. Section I classifies negotiable instruments and credit operations as commercial acts to be governed first by the provisions of this law, and then by general mercantile legislation, by banking or commercial custom, or by the general law of the country, in the order named, one applying if the preceding contains no rule governing the matter under consideration. Section II regulates the issuance, indorsement, acceptance, payment, etc., of negotiable instruments such as bills of exchange, promissory notes, and checks. Section III regulates credit operations such as dealings in futures, bank deposits, bank deposits of securities, deposits of merchandise in general warehouses, credit discounts, current accounts, letters of credit, extensions of credit, credits for raw materials and farm improvements, pledges, trusts, bonds, and certificates of deposit.

With the completion of the basic legislative program for the reorganization of the national financial structure, the Federal Government shortly thereafter began to adopt measures whereby the laws enacted might begin to have practical effect. The first of these measures was a decree prohibiting the importation into Mexico of all foreign money not gold. The import of Mexican money not gold was also prohibited, with the exception of notes of the Bank of Mexico. Other provisions of the decree provided that foreign money, for exchange purposes only, might be imported up to a value of 3,000 Mexican pesos, and repatriated Mexicans might bring into the country up to 50 pesos of Mexican money of any kind. There were other provisions in the decree, but it was seen that the primary object was to allow the Government, through a control of gold movements, to build up a gold reserve, while at the same time placing no direct restrictions on the export of any money, national or foreign. The creation of a gold reserve by the Federal Government was also seen as the first step in a program to bring about a return to the gold standard.

Following the policy intimated in the above decree, the Secretary of the Treasury announced on September 23, 1932, that the Federal

Government had authorized the Treasury to purchase gold of national production. The funds for such purchases were to be derived from the Government's seignorage profits from the silver minting authorized in the law of March 9, 1932 (amendment to the Monetary Law), except that amount used to back the notes issued by the Bank of Mexico. The gold so acquired by the Government was to be placed in a special fund in the Bank of Mexico, in which would be accumulated a gold reserve which would eventually permit Mexico to return to the gold standard.

H. G. S.

THE SIXTH REFRIGERATION CONGRESS AND THE ARGENTINE MEAT INDUSTRY

With the attendance of 72 delegates representing 28 countries, 7 of which were American Republics, the Sixth International Refrigeration Congress met at Buenos Aires from August 28 to September 4, 1932, under the auspices of the Government of Argentina. The inaugural ceremonies were held in the Cervantes Theater; addresses of welcome were delivered by Dr. Rómulo S. Naón, mayor of the city of Buenos Aires, and by Dr. Antonio de Tomaso, Argentine Minister of Agriculture.

It will be remembered that the First International Refrigeration Congress was held in Paris in 1908, the International Refrigeration Association being created as a result of that meeting. Vienna, Chicago, and London, in 1910, 1913, and 1924, respectively, were the seats of the second, third, and fourth congresses. In June, 1920, 44 countries, dominions, and colonies signed at Paris a convention which converted the association established by the first congress into the International Refrigeration Institute to function under the patronage of the French Government. Buenos Aires was designated as the seat of the sixth congress during the sessions of the fifth, held in Rome in 1928.

The Sixth Congress elected the following officers: President, Dr. Horacio N. Bruzone, president of the Argentine Rural Society; vice presidents, Dr. Jorge H. Marenco, Under Secretary of Agriculture, and Señor Miguel F. Casares; general secretaries, Dr. Carlos A. Erro and Dr. H. H. Mooy.

Over 200 papers, covering practically all the scientific and economic phases of refrigeration, were presented at the meeting. The discussions in the various commissions into which the work of the conference was divided were of great interest, since all the delegations were composed of technical experts in the field of refrigeration or men directly interested in the refrigeration industry. Of the delegations which

attended the Congress that representing the United States was the largest.

The discussions concerning "quick-freezing" methods and machinery were of special interest. The exportation from Argentina to Great Britain of meat cuts prepared by this process as a future possibility aroused considerable interest and discussion among the Argentine delegates and in the Buenos Aires press. During the course of the Congress, Mr. Gardner Poole, president of the American Institute of Refrigeration, and chairman of the American delegation, gave a demonstration of the Birdseye quick-freezing system in one of the buildings of the Ministry of Agriculture. This exhibition, which was illustrated by several reels of motion-picture films, showed the operation of the Birdseye system in its application to the quick freezing of fish, meats, fruits, and vegetables, and the harvesting, shelling, cleaning, grading, and freezing of green peas in northern New York. Samples of meat cuts, fish, mushrooms, spinach, and red raspberries frozen by this process in the United States were exhibited and a cut of Argentine beef, provided by the Ministry of Agriculture, was frozen before the delegates within 20 minutes on a small portable model of the Birdseye machine.

Two resolutions were adopted by the Congress with reference to the quick-freezing process, recommending that cuts of meat and other edible parts quickly frozen in packages under an official seal permitting their identification and coming from countries which offer sanitary guarantees should enjoy the same treatment as those frozen by the ordinary method and declaring that, inasmuch as the quick-freezing method makes no change in the cell tisues, such method of preservation should be considered hygienic. The Congress also recommended that studies with respect to quick-freezing methods with special reference to the preservation of food products should be encouraged as much as possible in the various countries.

An international refrigeration exposition was organized under the auspices of the Argentine national executive committee of the Congress. This was officially opened on September 4 in conjunction with the International Livestock Show held at the grounds of the Argentine Rural Society in Palermo. The latest refrigeration machinery and apparatus were shown at this exposition and the most modern methods of storing and transporting food products illustrated.

Following the conclusion of the Congress, the official delegates made a tour of inspection to some of the principal meat-packing plants and visited some of the large cattle ranches near Buenos Aires. Previous to this visit the delegates to the Congress had been shown motion pictures illustrating the Argentine livestock industry and particularly the rigid method of veterinary inspection maintained by the Argentine Government on livestock slaughtered for export.

During the sessions of the Congress a bronze plaque was unveiled in Buenos Aires in the presence of the delegates as a tribute to the memory of Charles Tellier, the French engineer known as the "Father of Artificial Refrigeration," whose pioneer work in this field made possible the extensive development of the Argentine livestock industry.

Those who have followed the development of refrigeration will probably remember that what is said to have been the first overseas shipment of meat under artificial refrigeration left France for Argentina in 1876. Charles Tellier had for a number of years experimented with the production of artificial cold by means of methylic ether and ammonia. Several Argentine and Uruguayan citizens, realizing the possibilities of refrigeration in the development of the livestock industry of the River Plate countries, had been in close touch with the French scientist and had given him aid and advice. To prove definitely the feasibility of transporting meats over long distances, Tellier acquired a small vessel and installed on it a refrigerating system. In September, 1876, with a small trial shipment of beef, mutton, pork, and poultry, he set off on the long journey to Buenos Aires, arriving in the River Plate estuary on Christmas of the same year after a difficult voyage of 105 days.

The trip was a success. The meats arrived in good condition, despite the simplicity of the refrigerating system, and were consumed by the guests invited to various dinners served on board. The Argentine press, commenting upon the arrival of *El Frigorífico*, as Tellier's vessel was named, prophesied that the newly arrived invention would have a decisive influence upon the future of the Republic.

Artificial refrigeration has been, as predicted, one of the most important factors in the development of the meat industry of the country, which in turn is one of the most important phases of progress in Argentina. Shortly after the first shipment of frozen meat from Argentina in 1877 the construction of the first *frigorífico*, or packing plant, in South America was begun by The River Plate Fresh Meat Co. (Ltd.) at the town of Campana. The plant was finished and began to ship frozen mutton in 1883. To-day there are 22 such establishments. They can process 28,010 heads of cattle, 67,510 sheep, and 8,030 hogs in an 8-hour day, and the capacity of their chilling and freezing chambers and cold-storage deposits is 585,813 and 182,669 cubic meters, respectively. The value of their fixed assets (land, buildings, machinery, etc.) is estimated at 250,000,000 paper pesos and their subscribed and paid-in capital, not including that of the Matadero Frigorífico Municipal, which is owned by the city of Buenos Aires, amounts to 193,855,528 pesos. The capital of 9 of the plants is Argentine, 8 are owned by American corporations, and 5 by British companies.

An index of the important economic relation between these establishments and the livestock industry is the amount which they spend annually for the purchase of stock. In 1931 the 15 *frigoríficos* which were in operation during the year bought stock to the amount of 347,412,566 paper pesos, as follows:

	Heads	Paper pesos
Cattle	2,309,385	288,360,073.99
Sheep	5,388,326	45,240,980.65
Swine	392,428	13,811,512.17
Total	8,090,139	347,412,566.81

Besides these large establishments there are 53 smaller plants in Argentina for the preparation of meat products; all of these have refrigeration systems. Thirty-six of them are located in Buenos Aires. The total capacity of their refrigeration chambers is 19,322 cubic meters. In the port of Buenos Aires there is also a large deposit with 21 chambers and a total capacity of 5,500 cubic meters for the storage of all sorts of perishable products for export or domestic consumption. It is owned by the Government but operated by a private concern.

Although the *frigoríficos* near Buenos Aires supply the capital with 46 per cent of the beef it consumes, 39 per cent of the mutton, and 17 per cent of the pork, the bulk of their output and of that of the smaller plants is exported, their principal market being the United Kingdom. The following table shows the exports of meats and other cold-storage products from Argentina during the years 1930 and 1931:

Products	1930		1931	
	Metric tons	Gold pesos	Metric tons	Gold pesos
Frozen beef	98,748	17,712,780	83,681	13,899,180
Chilled beef	345,525	70,914,068	352,227	67,535,512
Frozen mutton	80,360	14,408,556	83,043	13,859,328
Salted pork and beef	3,866	967,969	3,509	886,529
Frozen pork	4,830	1,114,492	5,278	1,172,348
Hams	19	11,447	78	47,329
Smoked tongues	423	312,342	427	437,618
Frozen sausage	27,886	4,964,477	27,925	3,769,525
Bacon	14	6,580	40	10,332
Animal oil	793	160,986	1,203	198,878
Soup stock	1,746	768,495	1,871	763,779
Preserved pork	693	200,133	876	250,248
Other preserved meats	62,420	16,651,321	55,078	13,545,451
Stearin	5,449	779,328	5,058	683,930
Meat extract	1,682	2,549,960	1,197	1,812,913
Meat flour	9,336	739,201	10,423	628,054
Lard	112	20,101	130	25,748

Products	1930		1931	
	Metric tons	Gold pesos	Metric tons	Gold pesos
Butter	23,204	13,367,330	23,209	13,269,760
Margarin and palmitin	791	144,344	726	109,499
Rendered tallow and grease	50,847	7,428,935	60,752	6,631,661
Lard scrap	5,040	184,441	3,061	124,939
Salted casings	8,714	2,114,438	7,475	1,872,491
Dried casings	125	100,540	116	100,117
Frozen grease	139	23,958	152	19,546
Eggs	[1] 968,820	193,764	[1] 2,606,107	419,267
Fresh fruits	5,292	375,265	7,805	423,259
Frozen poultry	1,117	353,983	2,577	701,531
Cream	14	8,979	136	66,192
Jerked beef	155	40,409	25	5,675
Cheese	337	124,696	479	177,626
	739,677	155,843,328	738,557	143,438,265

[1] Dozens.

The effect of artificial refrigeration upon the livestock industry of Argentina has been one of gradual improvement of the breeds to satisfy the exacting requirements of the export market. In 1908, out of 29,116,625 heads of cattle, 55 per cent were purebred or purebred on one side, and 45 per cent native. Six years later the pure and mixed breeds had increased to 64 per cent, and in 1930, out of a total of 32,211,855 heads, 71 per cent were purebred or purebred on one side and only 29 per cent native. The larger percentage of purebred stock is due almost entirely to the increase in the number of Shorthorn cattle, which in 1930 represented 56.2 of the total number of heads, as compared with 45.5 per cent in 1914. The greater number of Shorthorns is explained by the fact that the meat of this breed is preferred in England, the traditional market for Argentine beef, and by the shorter time which it takes a Shorthorn to obtain its maximum development.

The same tendency toward the improvement of stock is noted in the sheep of the country. According to the 1930 census, out of a total of 44,413,221 sheep 90.5 per cent were purebred or purebred on one side and only 9.5 of native breeds, as compared with 79.3 and 20.7 per cent in 1914, respectively. The improvement is particularly noticeable in those breeds which produce good-quality meat as well as wool. In 1914, out of a total of 43,225,452 sheep, 15.2 per cent were of the Merino breed; in 1930 the percentage of sheep of this breed was 32.3. Similarly the percentage of the Romney Marsh sheep has increased from 6.3 per cent in 1914 to 17 per cent in 1930.

The breeding of hogs has also shown considerable improvement (see October, 1932, issue of the BULLETIN, p. 725), especially with reference to those breeds which produce the lean meats for which the

British market has shown a preference. The number of hogs of pure breed, or purebred on one side, represented 44.4 per cent of the total number of hogs in the country in 1908; 56 per cent in 1914; and 62.5 per cent in 1930. Hogs of the Duroc Jersey breed, which in 1914 accounted for 5.7 per cent of the total number of hogs in the country, in 1930 accounted for 28.5 per cent. Those of the Poland China breed increased from 4.3 per cent in 1914 to 13.3 per cent in 1930. The increase in the number of hogs of these two breeds coincides with the beginning and the development of the exportation of frozen pork from Argentina.

As may be seen, Argentina has made great progress in the application of refrigeration to her export trade in meats. There is still open a great field in the use of refrigeration in the domestic commerce of the country. Argentina is said to lead the world in the consumption of meat, with a yearly average of 264 pounds per capita. Recent statistics prepared by the Ministry of Agriculture show that on June 30, 1932, there were 33 private and 351 municipal abattoirs in the interior of the Republic which did not have refrigeration systems. These abattoirs have sufficient daily capacity to slaughter 164 and 10,505 heads, respectively. Refrigeration is only beginning to be applied to the fishing and fruit industry, and the number of refrigerated trucks and railway cars is still small.—G. A. S.

NOTE ON SOME OF THE JEWELS CONTAINED IN TOMB 7 AT MONTE ALBAN

At the end of Miss Beatrice Newhall's article on "The Treasure of Monte Alban" published in the June, 1932, number of the BULLETIN OF THE PAN AMERICAN UNION, she comments on the contents of the translation of my communication to the Congress of Americanists held in Hamburg and the paper I read in March at the meeting of the National Academy of Sciences in Mexico City.

Her ingenious remarks that "naturally enough the 'symbol' of Cuauhtemoc, the last native ruler of Mexico, was an eagle, for the Aztec word for eagle was 'Cuauhtli,'" and that "the descending eagle might be taken to signify the fallen fortunes of the unfortunate Aztec" . . . reveal her unconsciousness of the fact that the Ancient Mexicans employed a system of ikonomatic writing in which, as in a rebus, objects were pictured for their phonetic value. This explains why she did not grasp the main point of my "Contribution to a solution of the problem of the Monte Alban Tomb 7," which I now proceed to present to the readers of the BULLETIN.

The name of Cuauhtemoc, which literally means "the descending eagle" and is composed of the Aztec words *Cuauhtli* = eagle and *Temo* = descending or swooping down, seems particularly appropriate to the young prince who displayed such heroism and energy in his desperate resistance to the Spaniards.

In Mexican MSS., as, for instance, in the examples reproduced from the Aubin MS. and the Mapa de Tepechpan in Figure 1, Cuauhtemoc's name is expressed by a swooping eagle with or without the accompaniment of footprints pointing downwards (to express the verb

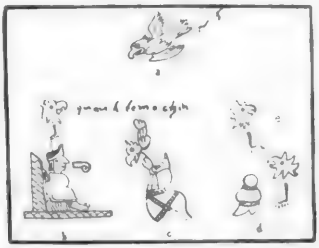


FIGURE 1.—CUAUHTEMOC'S NAME

In Mexican picture writings, the name of the last Aztec Emperor is recorded in these various manners.

FIGURE 2.—THE EMPEROR CUAUHTEMOC

From Espinosa's Historia.

temo = descending) or, more cursively, by an eagle's head combined with a single footprint.

Being familiar with the names of Cuauhtemoc as recorded in Mexican documents, I was greatly impressed, on seeing the Monte Alban jewels for the first time, by the fact that two jewels of the most exquisite workmanship display the descending eagle, Cuauhtemoc's hieroglyph, and that, moreover, the first, a gold ring, is in the characteristic form of the copilli or high diadem worn by the Mexican kings. (See fig. 2.) This ring, of which five counterparts in silver were also found in tomb 7, is reproduced in Figure 3[a].

The second jewel that arrested my attention was the exquisitely wrought gold pendant, also cast in a single piece, representing a descending eagle in a closed circle (fig. 3[b].)

In both cases the exact counterparts of the symbols hanging from the eagle's beak can be seen in Mexican MSS. (for instance in the Magliabecchi MS. on the "mantas" worn in festivals by the lords), and the same is the case with the signs on other jewels and the calendar signs carved on bone, which exhibit all the characteristics of Mexican conventional art.

These facts led me to investigate the possibility that the jewels and carved bones found in what had been an abandoned, plundered Zapotec tomb at Monte Alban might be those of Cuauhtemoc and the other Mexican lords who were taken as hostages by Cortés on

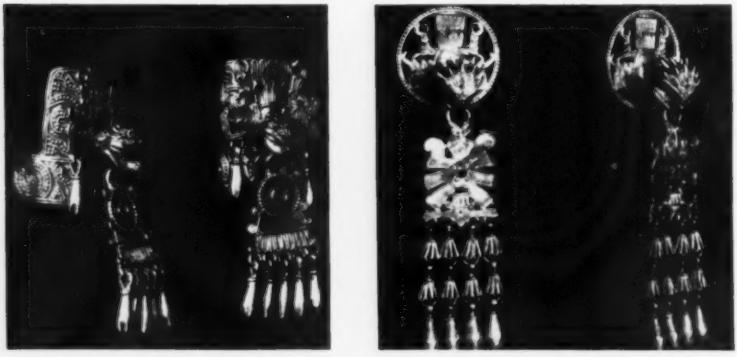


FIGURE 3.—JEWELS FROM TOMB 7 AT MONTE ALBÁN

(a) Gold ring in shape of an Aztec crown, with Cuauhtemoc's hieroglyph. (b) Gold pendant with Cuauhtemoc's hieroglyph.

his expedition to "Higueras" in 1524 and are known never to have returned to Mexico.

An illustrated paper, containing the results of my further study of the question, will soon appear in the *Boletín de la Sociedad Mexicana de Geografía y Estadística.*

It will be seen, by the foregoing details, that my suggestion that the jewels in question might have pertained to Cuauhtemoc was based on more substantial evidence than Miss Newhall realized, which nowise detracts from the merit of her article.

I regret that, as she was dealing with an unfamiliar subject, this talented young writer did not submit these comments to me for revision before publishing them and thus obviated the necessity for the publication of this note.—ZELIA NUTTALL.

NECROLOGY

COLOMBIA recently mourned the death of one of her distinguished journalists and statesmen, Dr. Guillermo Camacho Carrizosa, who died suddenly at Cachipay on September 3, 1932. Born at Bogota in 1876, he entered public life at an early age and on various occasions was a member of the municipal council of Bogota, the departmental assembly of Cundinamarca, and the upper and lower houses of the National Congress. In 1909 he was appointed Minister of Foreign Affairs and some years later represented his country in France, Italy, and Spain as Minister Plenipotentiary. Upon his return to Colombia he served for some years as Governor of Cundinamarca. At the time of his death he was a member of the advisory board of the Ministry of Foreign Affairs.

CHILE lost one of her prominent public men by the demise last July of Don Eliodoro Yáñez Ponce de León. Born in Santiago on May 6, 1860, he was educated at the National Institute and the University of Chile, where he finished his law studies in 1883. Señor Yáñez entered public life in 1893 through his election to the Chamber of Deputies, and after many years of service as a legislator was elected president of the senate in 1924. As the founder of *La Nación* and *El Correo de Valdivia* Señor Yáñez also occupied a prominent place in Chilean journalism.

Admiral Guillermo Soublette, one of the most prominent figures in the Chilean Navy, died on August 26, 1932.

The death of Gen. Leonidas Plaza Gutiérrez, twice President of ECUADOR, has been deeply felt throughout his native country. When he passed away on September 17, 1932, General Plaza was 66 years old. He was first elected to the Presidency in 1901 on a reform platform; in 1912 he was elected for the 4-year term ending in 1916. On his death the Government of Ecuador, in recognition of the many services which he had rendered his country, decreed three days of mourning throughout the Republic.

On October 1, 1932, Dr. Agustín T. Whilar, one of the foremost educators in PERU, died at Lima at the age of 75. Born in Nicaragua, he went to Peru at an early age. There he studied at the University of San Marcos and from the date of his graduation devoted all his

energy and enthusiasm to the promotion of education in his adopted country. He was the educator of several generations, the founder of the Colegio Peruano de Lima and the Escuela Normal de Preceptores, and the author of numerous textbooks and a number of important works on pedagogical methods.

Don Antonio Bachini, who for many years played a prominent part in the political life of URUGUAY, died at Montevideo on September 11, 1932. Born in the town of Dolores in 1860, at the age of 15 Señor Bachini found himself owner, editor, printer, and distributor of a provincial newspaper when its former owner was forced to emigrate for political reasons. The manner in which he acquitted himself in this undertaking gave him his start as a reporter on one of the Montevideo dailies. His activities during his long years of public life were not restricted, however, to newspaper work. He served two terms in the Chamber of Deputies, was Minister of Foreign Affairs from 1907 to 1910, and in 1923 was appointed Uruguayan Minister to Portugal. Later he served his country in the same capacity in Germany and England and shortly before his death had been appointed Minister Plenipotentiary to Brazil.